DRAFT

# STRUCTURAL COMPONENT CONSTRUCTION COST ESTIMATES 30% DESIGN LEVEL

for the

# San Francisco-Oakland Bay Bridge East Span Seismic Safety Project

Contract No. 59A0040 Bridge No. 34-0006

Prepared for the

# State of California Business, Transportation and Housing Agency

Submitted by



San Francisco, California

May 18, 1998

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# Summary Estimates

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BK-2L Bikeway with Two Lane Level

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F-1,2,3 Demo less Demo Included in Viaduct Modifications

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All Alternatives

# Cost Estimate Summary

**Cost Estimate Summary Sheet** 

# Cost Estimates

# Mainspan Alternatives -Cable Stayed

A-1.1	Cable Stayed Main Span, Dual Concrete Towers, Steel Box Deck
A-1.2	Cable Stayed Main Span, Single Concrete Tower, Steel Box Deck
A-1.3a	Cable Stayed Main Span, Dual Concrete Tower, 4.5 Meter Concrete Box Deck
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A-1.4	Cable Stayed Main Span, Single Concrete Tower, Steel/Concrete Composite Box Deck

ANNING ESTIMATE	
RCVD BY: RAF	IN EST:
ismic	OUT EST:
BR. No.: 34-0006	DISTRICT: 04
CU: <b>04</b>	RTE: 80
EA: 01200K	CO: ALA/SF
	KP: <b>000000</b>
TURES IN PROJECT :	EST. NO.
PRICES BY :	COST INDEX:
OLIANTETTEC DV.	DATE

	QUANTI	TIES CHECKED BY	<b>(</b> :	DATE	:
	CONTRACT ITEMS TYP	E UNIT	QUANTITY	PRICE	AMOUNT
Substructi	ıre: West Pier				
1	STRUCTURE EXCAVATION (BRIDGE)  TYPE		6,000		
2	STRUCTURE EXCAVATION (BRIDGE)  TYPE	H m3	2,000		
3	STRUCTURE BACKFILL (BRIDGE)	m3	4,000		
4	CIDH CONC. PILING 2.5 M	m	80		
5	CIDH CONC. PILING 2.5 M (W/PERM CASING)	m	126		
6	STRUCTURAL CONCRETE, BRIDGE FOOTING	m3	3,800		
. 7	STRUCTURAL CONCRETE, BRIDGE	m3	2,810		
8	BAR REINFORCING STEEL (BRIDGE)	kg	1,940,000		
Substructu	ire: Tower Pier		1 11		*****
1	STRUCTURE EXCAVATION (BRIDGE)  TYPE	D m3	60,000		
2	CIDH CONC. PILING 3.0 M (WIPERM CASING)	m	1,820		
3	PRESTRESSING, FOOTING	LS	1		
4	PRESTRESSING, TOWER	LS	1		
5	STRUCTURAL CONCRETE, BRIDGE FOOTING	m3	11,300		
6	STRUCTURAL CONCRETE, BRIDGE	m3	14,400		
7	BAR REINFORCING STEEL	kg	2,720,000		
8	BAR REINFORCING STEEL (EPOXY COATED)	kg	5,616,000		
9	FURNISH/INSTALL STRUCTURAL STEEL, LINKS	kg	0	· , ·	
10	FURNISH/INSTALL STRUCTURAL STEEL, LINER	kg	0		
11	FURNISH/INSTALL STRUCTURAL STEEL, DIAPHRAMS	kg	o l		
12	MISCELLANEOUS METAL BRIDGE	kg	50,000	-	
Substructu	ire: East Pier		2.00		
1	FURNISH CISS PILING 2.5M	m	1,730		Τ
2	DRIVE CISS PILES 2.5M	EA	20		
3	PRESTRESSING, FOOTING	LS	1 1		
4	STRUCTURAL CONCRETE, BRIDGE FOOTING	m3	5,650		
5	STRUCTURAL CONCRETE, BRIDGE	m3	2,410		
6	BAR REINFORCING STEEL	kg	0		<u> </u>
7	BAR REINFORCING STEEL (EPOXY COATED)	kg	2,900,000		
Superstruc			2,000,000		J.,
1	STRUCTURAL CONCRETE, BRIDGE	m3	0		
2	FURNISH/INSTALL DECK OVERLAY	m2	31,200		<u> </u>
3	BEARING DEVICES	LS	1		<b>———</b>
4	JOINT SEAL ASSEMBLY	m	100		
5	FURNISH STRUCTURAL STEEL	kg	18,290,000		1
6	ERECT STRUCTURAL STEEL	kg	18,290,000		
7	FURNISH/ERECT CABLE STAYS	kg	720,000		
8	FURNISH/INSTALL HINGE UNITS	kg	60,000		<del>†</del>
9	CLEAN & PAINT STRUCTURAL STEEL	LS	1		
10	MISCELLANEOUS METAL BRIDGE		5,000		<del> </del>
11	BARRIER BAIDGE		2,500		
Misc.	by it it that I	m	2,000		<u> </u>
1	FENDER SYSTEM	LS	1 1	17.7	1
2	ELEVATOR (INC. MECH. & ELECT.)	LS	<del>                                     </del>		1
3	NORTH SLOPE STABILIZATION	LS	<del>                                     </del>		<del>                                     </del>
4	CONCRETE SEAL	LS	<del>                                     </del>		<del>                                     </del>
*	OCHORETE SEAL	SUBTOTAL	1. ' 1		1
COMMEN	TC.	SOBIOTAL	MORILIZATION		\$00.00E.00
COMMEN	10.		MOBILIZATION		\$20,965,66

A-1.1

COST PER SQ. METER \$8,736

5/17/98

 MOBILIZATION
 \$20,965,667

 SUBTOTAL BRIDGE ITEMS
 \$209,656,667

 CONTINGENCIES (@ 25%)
 \$52,414,167

 BRIDGE TOTAL COST
 \$262,070,833

 GRAND TOTAL
 \$262,070,833

 FOR BUDGET PURPOSES - SAY
 \$262,071,000

BRIDGE GEN	IERAL PLAN ESTIMATE	OR PLANNIN	NG ESTIMATE			
			RCVD BY:	RAF	IN EST:	
	San Francisco - Oakland Bay I	Bridge Fast Span Seismic			OUT EST:	
BRIDGE:	Safety Pro			34-0006	DISTRICT:	04
=	Main Span Segment - Sin	gle Concrete Towers	CU:	04	RTE:	80
TYPE:	Cable Stayed - Orthot	tropic Steel Deck	EA:	01200K	CO:	ALA/SF
					KP:	000000
LENGTH:	625.0 Meters	NUMBER OF STRUCTURE	S IN PROJECT :		EST. NO.	
WIDTH:	48.0 Meters		PRICES BY :	÷	COST INDEX:	
AREA =	30000 m sq	Qī	UANTITIES BY:		DATE:	
		QUANTITIES	CHECKED BY:		DATE:	
	00150105555				DD10=	

AREA	= 30000 m sq		QUANTITIES BY	<u>':</u>	DATI	E:
		QUANTITIE	S CHECKED BY	<u>':</u>	DATI	E:
	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
ubstructur	e: West Pier		1			
1	STRUCTURE EXCAVATION (BRIDGE	) TYPE D	m3	6,000		1
2	STRUCTURE EXCAVATION (BRIDGE		m3	2,000		1
3	STRUCTURE BACKFILL (BRIDGE)	,	m3	4,000		1
4	CIDH CONC. PILING 2.5 M		m	80		
5	CIDH CONC. PILING 2.5 M (W/PERM CAS	ing)	m	126		
6	PRESTRESSING		LS	1		
7	STRUCTURAL CONCRETE, BRIDGE	FOOTING	m3	3,800		+
8	STRUCTURAL CONCRETE, BRIDGE	10011110	m3	2,000		
9	BAR REINFORCING STEEL (BRIDGE	1	kg	1,530,000		
	e: Tower Pier		T va	1 1,500,000		<u> </u>
1	STRUCTURE EXCAVATION (BRIDGE	) TYPE D	m3	30,000	·	T
2	CIDH CONC. PILING 2.5 M (W/PERM CAS		m	1,240		
3	·	ing)	LS	1,240		
4	PRESTRESSING, FOOTING		LS	1 1		<del> </del>
	PRESTRESSING, TOWER	FOOTING				
5	STRUCTURAL CONCRETE, BRIDGE	FOOTING	m3	3,640		
6	STRUCTURAL CONCRETE, BRIDGE		m3	5,850		<del>-</del>
7	BAR REINFORCING STEEL		kg	1,100,000		
8	BAR REINFORCING STEEL (EPOXY (		kg	2,817,000		
9	FURNISH/INSTALL STRUCTURAL ST		kg	315,000		
10	FURNISH/INSTALL STRUCTURAL ST		kg	0		
11	FURNISH/INSTALL STRUCTURAL ST	EEL, DIAPHRAMS	kg	39,000		
12	MISCELLANEOUS METAL BRIDGE	+1	kg	30,000		
Substructur	e: East Pier					
1	FURNISH CISS PILING 2.5M		m	1,730		
2	DRIVE CISS PILES 2.5M		EA	20		
3	PRESTRESSING, FOOTING		LS	1	10	
4	STRUCTURAL CONCRETE, BRIDGE	FOOTING	m3	5,650		
5	STRUCTURAL CONCRETE, BRIDGE		m3	2,410		
6	BAR REINFORCING STEEL		kg	0		
7	BAR REINFORCING STEEL (EPOXY (	COATED)	kg	2,900,000		
Superstruct			<u> </u>		331-39	<del>'</del>
1 1	FURNISH/INSTALL DECK OVERLAY		m2	31,200		
2	BEARING DEVICES		LS	1		- t
3	JOINT SEAL ASSEMBLY		m	100		
5	FURNISH STRUCTURAL STEEL		kg	19.540,000		<del>- </del>
6	ERECT STRUCTURAL STEEL		kg	19,540,000		1
7	FURNISH/ERECT CABLE STAYS		kg	1,036,000	* 'Y-1'	<del> </del>
8	FURNISH/INSTALL HINGE UNITS			60,000		+
9	CLEAN & PAINT STRUCTURAL STEE	1	kg LS	1		
	MISCELLANEOUS METAL BRIDGE	<u> </u>				<del></del>
10		\	kg	5,000		
	BARRIER		m	2,500		
fisc.	FENDER OVOTEN		T 16	T 4 1		1
1	FENDER SYSTEM		LS	1		<del> </del>
2	ELEVATOR (INC. MECH. & ELECT.)		LS	1 1		<b></b>
3	NORTH SLOPE STABILIZATION		LS	1		4
4	CONCRETE SEAL		LS	1 1		1
	_		SUBTOTAL			\$165,842,6
OMMENT	S:			MOBILIZATION		\$18,426,9
			SUBTOTAL BI	RIDGE ITEMS	SECTION OF THE PROPERTY OF THE	\$184,269,5
				CONTINGENCIES	(@ 25%)	\$46,067,3
			BRIDGE TOTA	L COST		\$230,336,9
			GRAND TOTA	L	***************************************	\$230,336,9
Γ	COST PER SQ. METER	\$7,678	- external control con	PURPOSES - SAY		\$230,337,0

OP	<b>PLANNING</b>	ECTIMATE
Un	L L'WIAIAIIAG	ESTIMATE

BRIDGE GEN	NERAL PLAN ESTIMATE	OR PLANNIN	G ESTIMATE			
			RCVD BY:	RAF	IN EST:	
	San Francisco - Oakland I	Bay Bridge East Span Seismic			OUT EST:	
BRIDGE:		ty Project	BR. No.:	34-0006	DISTRICT:	04
	Main Span Segment	- Dual Concrete Towers	CU:	04	RTE:	80
TYPE:	Cable Stayed -	4.5m Concrete Deck	EA:	01200K	CO:	ALA/SF
				35,30	KP:	000000
LENGTH:	625.0 Meters	NUMBER OF STRUCTURE	S IN PROJECT		EST. NO.	
WIDTH:	48.0 Meters		PRICES BY		COST INDEX:	
AREA =	30000 m sq	Qt	ANTITIES BY:	:	DATE:	
		QUANTITIES	CHECKED BY:		DATE:	

AREA	1 = 30000 m sq	C	QUANTITIES BY	<b>'</b> :	DATI	3:
		QUANTITIE	S CHECKED BY	<b>'</b> :	DATI	3:
	CONTRACTITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
ubstructu	ire: West Pier		1 0	T GOANTIN	1102	_ AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE	) TYPE D	m3	6,000		
2	STRUCTURE EXCAVATION (BRIDGE		m3	2,000		†
3	STRUCTURE BACKFILL (BRIDGE)		m3	4,000	***	
4	CIDH CONC. PILING 2.5 M		m	80		<b></b>
5	CIDH CONC. PILING 2.5 M (W/PERM CAS	ING)	m	126		
6	STRUCTURAL CONCRETE, BRIDGE		m3	3,800		
7	STRUCTURAL CONCRETE, BRIDGE		m3	2,808		
8	BAR REINFORCING STEEL (BRIDGE	)	kg	1,940,000		<u> </u>
ubstructu	re: Tower Pier	<u></u>	···	1	*****	<del></del>
1	STRUCTURE EXCAVATION (BRIDGE	) TYPE D	m3	60,000		
2	CIDH CONC. PILING 3 M (W/PERIM CASING		m	2,125	10111	
3	PRESTRESSING, FOOTING		LS	1	-	1
4	PRESTRESSING, TOWER		LS	1		
5	STRUCTURAL CONCRETE, BRIDGE	FOOTING	m3	11,300		
6	STRUCTURAL CONCRETE, BRIDGE		m3	17,600		
7	BAR REINFORCING STEEL		kg	3,310,000		
8	BAR REINFORCING STEEL (EPOXY)	COATED)	kg	6,237,000		
9	FURNISH/INSTALL STRUCTURAL ST		kg	0		
10	FURNISH/INSTALL STRUCTURAL ST		kg	0		
11	FURNISH/INSTALL STRUCTURAL ST		kg	0	··· ··· ···	
12	MISCELLANEOUS METAL BRIDGE		kg	50,000		
	re: East Pier		1	55,000		<u> </u>
1	FURNISH CISS PILING 2.5M		m	1.730	<del></del>	1
2	DRIVE CISS PILES 2.5M		EA	20		<del>                                     </del>
3	PRESTRESSING, FOOTING	*****	LS	1		<del> </del>
4	STRUCTURAL CONCRETE, BRIDGE	FOOTING	m3	5,650		<del></del>
5	STRUCTURAL CONCRETE, BRIDGE	10011110	m3	2,410		<del> </del>
6	BAR REINFORCING STEEL	······································	kg	0		<del>                                     </del>
7	BAR REINFORCING STEEL (EPOXY)	COATED)	kg	2,900,000		†
uperstruc			9			
1	PRESTRESSING	525,000	LS	1 1		
2	STRUCTURAL CONCRETE, BRIDGE	320,000	m3	32,400		†
3	FURNISH/INSTALL DECK OVERLAY		m2	31,200		<del>                                     </del>
4	BEARING DEVICES		LS	1		†
5	JOINT SEAL ASSEMBLY	····	m	100		<del> </del>
6	BAR REINFORCING STEEL	· · · · · · · · · · · · · · · · · · ·	kg	4,820,000		<del>                                     </del>
7	FURNISH/ERECT CABLE STAYS		kg	1,690,000		<del> </del>
8	FURNISH/INSTALL HINGE UNITS	R.	kg	60,000		†
9	MISCELLANEOUS METAL BRIDGE		kg	5,000		<del> </del>
10	BARRIER		m	2,500		<del>                                     </del>
		<del></del>	- "-			<b>1</b>
lisc.		<del></del>	L			<u> </u>
1	FENDER SYSTEM		LS	1 1		1
2	ELEVATOR (INC. MECH. & ELECT.)	******	LS	1		
3	NORTH SLOPE STABILIZATION		LS	1		<del></del>
4	CONCRETE SEAL	Total Control of the	LS	1		<del>                                     </del>
	1		SUBTOTAL	<u> </u>		\$173,464,7
OMMENT	TS <sup>.</sup>		CODIOIAL	MOBILIZATION		\$19,273,8
OHINILIY!	TV.		SUBTOTAL BE			\$192,738,5
		r.		CONTINGENCIES	(@ 25%)	\$48,184,6
			BRIDGE TOTA		( <del>-</del> 23/0)	\$240,923,1
		-	GRAND TOTA			\$240,923,1
1	COST PER SQ. METER	\$8,031 5/17/98		PURPOSES - SAY	,	\$240,923,1

4	CONCRETE SEAL			LS	1		
			* *	SUBTOTAL			\$177,944,700
COMMEN	TS:				MOBILIZATION	1	\$19,771,633
				SUBTOTAL BF	RIDGE ITEMS		\$197,716,333
					CONTINGENCIES	(@ 25%)	\$49,429,083
			•	<b>BRIDGE TOTA</b>	L COST	-	\$247,145,417
				GRAND TOTAL	L		\$247,145,417
	COST PER SQ. METER	\$8,238	5/17/98	FOR BUDGET	<b>PURPOSES - SA</b>	Υ	\$247,145,000

LS

LŞ

2

3

**FENDER SYSTEM** 

ELEVATOR (INC. MECH. & ELECT.)

NORTH SLOPE STABILIZATION

8	STRUCTURAL CONCRETE, BRIDGE	m3	2,000		
9	BAR REINFORCING STEEL (BRIDGE)	kg	1,530,000		
ubstruct	ure: Tower Pier				
1	STRUCTURE EXCAVATION (BRIDGE) TYPE D	m3	30,000		
2	CIDH CONC. PILING 3.0 M (W/PERM CASING)	m	1,375		
3	PRESTRESSING, FOOTING	LS	1 1		
4	PRESTRESSING, TOWER	LS	1 1		
5	STRUCTURAL CONCRETE, BRIDGE FOOTING	m3	3,640		
6	STRUCTURAL CONCRETE, BRIDGE	m3	5,850		
7	BAR REINFORCING STEEL	kg	1,100,000	***************************************	
8	BAR REINFORCING STEEL (EPOXY COATED)	kg	2,817,000		
9	FURNISH/INSTALL STRUCTURAL STEEL, LINKS	kg	315,000		
10	FURNISH/INSTALL STRUCTURAL STEEL, LINER	kg	0	77 48	
11	FURNISH/INSTALL STRUCTURAL STEEL, DIAPHRAMS	kg	39,000		
12	MISCELLANEOUS METAL BRIDGE	kg	30,000		
	ure: East Pier	1 Ny	1 00,000		
1	FURNISH CISS PILING 2.5M	m	1,730		
2	DRIVE CISS PILES 2.5M	EA	20		
3	PRESTRESSING	LS	1 1		
4	STRUCTURAL CONCRETE, BRIDGE FOOTING				<del></del>
5		m3	5,650		
6	STRUCTURAL CONCRETE, BRIDGE	m3	2,410		
	BAR REINFORCING STEEL	kg	0		
7	BAR REINFORCING STEEL (EPOXY COATED)	kg	2,900,000		- 1
perstru		T 10	T 4 T		
1	PRESTRESSING 249,000	LS	1 0 500		
2	FURNISH PRECAST CONCRETE DECK PANELS	m3	9,530		
3	BAR REINFORCING STEEL	kg	715,000		
4	FURNISH STRUCTURAL STEEL	kg	13,100,000		
5	ERECT STRUCTURAL STEEL & PANELS	LS	1 1		
6	CLEAN & PAINT STRUCTURAL STEEL	LS	1		
7	FURNISH/ERECT CABLE STAYS	kg	1,036,000		
8	BEARING DEVICES	LS	1 1		
9	JOINT SEAL ASSEMBLY	m	100		
10	FURNISH/INSTALL DECK OVERLAY	m2	31,200		
11	BARRIER	m	2,500		
12	FURNISH/INSTALL HINGE UNITS	kg	60,000		
13	MISCELLANEOUS METAL BRIDGE	kg	5,000		
			<u> </u>		
sc.					
1	FENDER SYSTEM	LS	1 1		
2	ELEVATOR (INC. MECH. & ELECT.)	LS	1 1		
3	NORTH SLOPE STABILIZATION	LS	1_1_		
4	CONCRETE SEAL	LS	1		
400 au-	A MANAGEMENT OF STREET	SUBTOTAL			\$143,331,00
MMEN	ITS:		MOBILIZATION		\$15,925,66
			RIDGE ITEMS	*	\$159,256,66
			CONTINGENCIES (	<b>25%</b> )	\$39,814,16
2.0		<b>BRIDGE TOT</b>	AL COST		\$199,070,83
	5/17/98	GRAND TOTA			\$199,070,83
	COST PER SQ. METER \$6,636	FOR BURGE	PURPOSES - SAY		\$199,071,00

# Cost Estimates

# Mainspan Alternatives -Suspension

A-2.1	Suspension Main Span, Dual Steel Towers, Steel Box Deck
A-2.1 - XL	Suspension Main Span, Dual Steel Towers, Steel Box Deck-with Long Span
A-2.2	Suspension Main Span, Single Steel Tower, Steel Box Deck
A-2.2 - XL	Suspension Main Span, Single Steel Tower, Steel Box Deck- with Long Span

BRIDGE GE	NERAL PLAN ESTIMATE	OR PLANN	ING ESTIMATE			
			RCVD BY:	RAF	IN EST:	
	San Francisco - Oakland Bay B	ridae Fact Snan Seismi	•		OUT EST:	
BRIDGE:	Safety Pro	inage Last Spair Seisini Siect		34-0006	DISTRICT:	04
	Main Span Segment - D	ual Steel Towers		04	RTE:	
TYPE:			-	01200K	· -	ALA/SF
III L.	Suspension Bridge	- Steel Deck	- EA.	UIZUUK	-	000000
				***		00000
LENGTH:	<del></del>	NUMBER OF STRUCTUR	ES IN PROJECT :		EST. NO.	
WIDTH:			PRICES BY :		COST INDEX:	
AREA =	30000 m sq		QUANTITIES BY:		DATE:	
		QUANTITIE	S CHECKED BY:		DATE:	
	CONTRACTITEMS	S TYPE	UNIT	QUANTITY	PRICE	AMOUNT
Substructure:						
1	STRUCTURE EXCAVATION (BRIDGE	TYPE D	m3	6,000		
2	STRUCTURE EXCAVATION (BRIDGE		m3	2,000		
3	STRUCTURE BACKFILL (BRIDGE)		m3	4,000		
4	CIDH CONC. PILING 2.5 M		m	80		
5	CIDH CONC. PILING 2.5 M (W/PERM CAS	ing)	m	126		
6	STRUCTURAL CONCRETE, BRIDGE	FOOTING	m3	3,800		
7	STRUCTURAL CONCRETE, BRIDGE		m3	1,520		
8	BAR REINFORCING STEEL (BRIDGE		kg	1,320,000		
Substructure:	: Tower Pier					
1	STRUCTURE EXCAVATION (BRIDGE	TYPE D	m3	60,000		
2	CIDH CONC. PILING 2.5 M (WIPERM CAS		m	1,740		***
3	PRESTRESSING, FOOTING		LS	1		
4	STRUCTURAL CONCRETE, BRIDGE	FOOTING	m3	10,700		
5	STRUCTURAL CONCRETE, BRIDGE		m3	0		
6	BAR REINFORCING STEEL		kg	0		
7	BAR REINFORCING STEEL (EPOXY	COATED)	kg	4,004,000		•
8	FURNISH STRUCTURAL STEEL		kg	8,312,000		
9	ERECT STRUCTURAL STEEL		kg	8,312,000	V	
10	CLEAN AND PAINT STRUCTURAL ST	reel	LS	1		
11	MISCELLANEOUS METAL	*****	kg	50,000		
Substructure:	East Pier					
1	FURNISH CISS PILING 2.5M		m	1,380		
2	DRIVE CISS PILES 2.5M		EA	16	1.	
3	PRESTRESSING, FOOTING		LS	1	11	2111
4	STRUCTURAL CONCRETE, BRIDGE	FOOTING	m3	5,340		
5	STRUCTURAL CONCRETE, BRIDGE		m3	2,050		166
6	BAR REINFORCING STEEL		kg	0		
7	BAR REINFORCING STEEL (EPOXY	COATED)	kg	2,580,000		
Superstructur						
1	FURNISH/INSTALL DECK OVERLAY		m2	31200		
2	BEARING DEVICES		LS	1		
3	JOINT SEAL ASSEMBLY		m	100		
4	FURNISH STRUCTURAL STEEL		kg	19,010,000		
5	ERECT STRUCTURAL STEEL		kg	19,010,000		
6	FURNISH SUSPENSION CABLE ASS		kg	1,640,000		
7	ERECT SUSPENSION CABLE ASSEM	<del></del>	kg	1,640,000		4
8	FURNISH SUSPENDER ASSEMBLIES	3	kg	219,000		
9	ERECT SUSPENDER ASSEMBLIES		kg	219,000		42
10	CLEAN & PAINT STRUCTURAL STEE	L.	LS	1		
11	MISCELLANEOUS METAL BRIDGE		kg	5,000		
12	BARRIER		m	2,500		
Misc.			· · · · · · · · · · · · · · · · · · ·			
1	FENDER SYSTEM		LS	1		
2	ELEVATOR (INC. MECH. & ELECT.)		LS	1		
3	NORTH SLOPE STABILIZATION		LS	. 1		
	EL AL SERVICE					
001:::==			SUBTOTAL			\$199,740,760
COMMENTS	:		OUDTOT: TO	MOBILIZATION		\$22,193,418
			SUBTOTAL BR		(A 050/)	\$221,934,178
		<del></del>		COST	(₩ 25%)	\$55,483,544
· · · · · · · · · · · · · · · · · · ·		<del></del>	BRIDGE TOTAL		·	\$277,417,722
1	COST RED SO METER	5/17/98	GRAND TOTAL			\$277,417,722
	COST PER SQ. METER	\$9,247	ILOW BODGE!	PURPOSES - SAY		\$277,418,000

	8	FURNISH SUSPENDER ASSEMBLIES		kg	267,000		
	9	ERECT SUSPENDER ASSEMBLIES		kg	267,000		
Γ	10	CLEAN & PAINT STRUCTURAL STEEL		LS	1		
	11	MISCELLANEOUS METAL BRIDGE		kg	5,000		
	12	BARRIER		m	2,590		
1	Misc.						
	1	FENDER SYSTEM		LS	1		
	2	ELEVATOR (INC. MECH. & ELECT.)		LS	1		
	3	NORTH SLOPE STABILIZATION		LS	1		
	4	REDUCE SKYWAY COSTS		m	69		
	,			SUBTOTAL	*		\$207,611,890
2	COMMEN	TS:			MOBILIZATION		\$23,067,988
				SUBTOTAL BE	RIDGE ITEMS		\$230,679,878
					CONTINGENCIES	(@ 25%)	\$57,669,969
-				<b>BRIDGE TOTA</b>	L COST		\$288,349,847
- 4-2.1XL				GRAND TOTAL	L		\$288,349,847
4-2.IAL		COST PER SQ. METER \$8,582	5/17/98	FOR BUDGET	<b>PURPOSES - SA</b>	Y	\$288,350,000

kg

kg

3,270,000

3,270,000

FURNISH SUSPENSION CABLE ASSEMBLIES

**ERECT SUSPENSION CABLE ASSEMBLIES** 

6

Substructi	JIE. WEST FIEL			
1	STRUCTURE EXCAVATION (BRIDGE)  TYPE [		6,000	
2	STRUCTURE EXCAVATION (BRIDGE)  TYPE	l m3	2,000	
3	STRUCTURE BACKFILL (BRIDGE)	m3	4,000	
4	CIDH CONC. PILING 2.5 M	m	80	
5	CIDH CONC. PILING 2.5 M (W/PERM CASING)	m	126	
6	STRUCTURAL CONCRETE, BRIDGE FOOTING	m3	3,800	
7	STRUCTURAL CONCRETE, BRIDGE	m3	1,520	
8	BAR REINFORCING STEEL (BRIDGE)	kg	1,320,000	
Substructu	ıre: Tower Pier			
1	STRUCTURE EXCAVATION (BRIDGE)  TYPE I	m3	30,000	,
2	CIDH CONC. PILING 2.5 M (W/PERM CASING)	m	1,240	
3	PRESTRESSING, FOOTING	LS	1	
4	STRUCTURAL CONCRETE, BRIDGE FOOTING	m3	3,590	
5	STRUCTURAL CONCRETE, BRIDGE	m3	0	***************************************
6	BAR REINFORCING STEEL	kg	0	
7	BAR REINFORCING STEEL (EPOXY COATED)	kg	1,850,000	
8	FURNISH STRUCTURAL STEEL	kg	5,510,000	
9	ERECT STRUCTURAL STEEL	kg	5,510,000	·
10	CLEAN AND PAINT STRUCTURAL STEEL	LS	1	
11	MISCELLANEOUS METAL	kg	30,000	
	ure: East Pier		1 00,000	<u> </u>
1	FURNISH CISS PILING 2.5M	m	1,380	T T
2	DRIVE CISS PILES 2.5M	EA	16	
3	PRESTRESSING, FOOTING	LS	1 1	
4	STRUCTURAL CONCRETE, BRIDGE FOOTING	m3	5,340	
5	STRUCTURAL CONCRETE, BRIDGE	m3	2,050	
6	BAR REINFORCING STEEL	kg	0	
7	BAR REINFORCING STEEL (EPOXY COATED)	kg	2,580,000	
Superstruc	<del></del>	l Ng	2,560,000	
1	FURNISH/INSTALL DECK OVERLAY	m2	31200	
2	BEARING DEVICES	LS	1 1	
3	JOINT SEAL ASSEMBLY		100	
4	FURNISH STRUCTURAL STEEL	m ka		
5	ERECT STRUCTURAL STEEL	kg	19,630,000 19,630,000	
6	FURNISH SUSPENSION CABLE ASSEMBLIES	kg	<del></del>	
7		kg	1,820,000	
	ERECT SUSPENSION CABLE ASSEMBLIES	kg	1,820,000	
8	FURNISH SUSPENDER ASSEMBLIES	kg	236,000	
9	ERECT SUSPENDER ASSEMBLIES	kg	236,000	
10	CLEAN & PAINT STRUCTURAL STEEL	LS	1 5 000	
11	MISCELLANEOUS METAL BRIDGE	kg	5,000	
12	BARRIER	<u> </u>	2,500	
Misc.	FENDER OVOTEN	1	1 4 1	<del></del>
1	FENDER SYSTEM	LS	1 1	
2	ELEVATOR (INC. MECH. & ELECT.)	LS	1 1	
3	NORTH SLOPE STABILIZATION	LS	1 1	
			<u> </u>	
		SUBTOTAL		\$179,726,900
COMMEN	IS:		MOBILIZATION	\$19,969,656
			RIDGE ITEMS	\$199,696,556
·			CONTINGENCIES (@ 25%)	\$49,924,139
		BRIDGE TOTA		\$249,620,694
	5/17/98	GRAND TOTA		\$249,620,694
	COST PER SQ. METER \$8,321	FOR BUDGET	PURPOSES - SAY	\$249,621,000

2	STRUCTURE EXCAVATION (BRIDGE)	IYPEH	m3	2,000		
3	STRUCTURE BACKFILL (BRIDGE)		m3	4,000		
4	CIDH CONC. PILING 2.5 M		m	80		
5	CIDH CONC. PILING 2.5 M (W/PERM CASING)		m	126		
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		m3	3,800		
7	STRUCTURAL CONCRETE, BRIDGE		m3	1,520		
8	BAR REINFORCING STEEL (BRIDGE)		kg	1,320,000		
Substructu	ure: Tower Pier			- //// /// // /// ///		74.74
1	STRUCTURE EXCAVATION (BRIDGE)	TYPE D	m3	30,000		
2	CIDH CONC. PILING 2.5 M (W/PERM CASING)		m	1,360		
3	PRESTRESSING, FOOTING		LS	1	***************************************	
4	STRUCTURAL CONCRETE, BRIDGE FOOTING		m3	3,590	•	
5	STRUCTURAL CONCRETE, BRIDGE		m3	0		
6	BAR REINFORCING STEEL		kg	0		
7	BAR REINFORCING STEEL (EPOXY COATED)		kg	1,850,000		
8	FURNISH STRUCTURAL STEEL		kg	5,510,000		
9	ERECT STRUCTURAL STEEL		kg	5,510,000		
10	CLEAN AND PAINT STRUCTURAL STEEL		LŠ	1		
11	MISCELLANEOUS METAL		kg	30,000		<u> </u>
Substructu	ure: East Pier		1	200000000000000000000000000000000000000		·
1	FURNISH CISS PILING 2.5M		m	1,520		1
2	DRIVE CISS PILES 2.5M		EA	16		
3	PRESTRESSING, FOOTING		LS	1		
4	STRUCTURAL CONCRETE, BRIDGE FOOTING		m3	5,340		* <u> </u>
5	STRUCTURAL CONCRETE, BRIDGE		m3	2,050		
6	BAR REINFORCING STEEL	·	kg	0		
7	BAR REINFORCING STEEL (EPOXY COATED)	*	kg	2,580,000		<u> </u>
Superstruc		-	<u> </u>		*	
1	FURNISH/INSTALL DECK OVERLAY		m2	35000		
2	BEARING DEVICES	**	LS	114		
3	JOINT SEAL ASSEMBLY		m	100	*	
4	FURNISH STRUCTURAL STEEL		kg	21,820,000	,, ,	<b>-</b>
5	ERECT STRUCTURAL STEEL		kg	21,820,000		
6	FURNISH SUSPENSION CABLE ASSEMBLIES		kg	3,040,000		*****
7	ERECT SUSPENSION CABLE ASSEMBLIES		kg	3,040,000	*	
8	FURNISH SUSPENDER ASSEMBLIES	3.6.7.	kg	270,000		+
9	ERECT SUSPENDER ASSEMBLIES		kg	270,000		
10	CLEAN & PAINT STRUCTURAL STEEL		LS	1		-
11	MISCELLANEOUS METAL BRIDGE		kg	5,000		
12	BARRIER		m	2,590		<del></del>
disc.				1 =1000	-	1
1	FENDER SYSTEM		LS	1 1		
2	ELEVATOR (INC. MECH. & ELECT.)		LS	1 1		
3	NORTH SLOPE STABILIZATION		LS	1 1	***	<del></del>
4	REDUCE SKYWAY COSTS		m	69		
7	1		SUBTOTAL	1 00 1		\$184,309,95
COMMEN	TS <sup>.</sup>		SODIOTAL	MOBILIZATION		\$20,478,88
			SUBTOTAL BI		*	\$204,788,83
	· · · · · · · · · · · · · · · · · · ·			CONTINGENCIES (	@ 25%)	
			BRIDGE TOTA		₩ 20/0j	\$51,197,20
						\$255,986,04
	COST DED SO METER AT 040	5/17/98	GRAND TOTA	PURPOSES - SAY		\$255,986,04 <b>\$255,986,00</b>
	COST PER SQ. METER \$7,619		12 12 KI II Kilo I	PURPLISHS - SAV		EJEE OUE M

A-2.2XL

# Skyway Alternatives

B HC-1	Skyway Structure, Haunched Concrete Superstructure
B UC-2	Skyway Structure, Uniform Concrete Superstructure
B US-3	Skyway Structure, Uniform Steel Superstructure
B MAIN	Main Span with Haunched Concrete Skyway Structure

TYPE:  LENGTH: WIDTH: AREA =  Substructure:  1 2 3	2400.0 Meters 48.0 Meters 115200 m sq  CONTRACT ITEM	Project Icture Box Girder  NUMBER OF STRUCTURE	CU: EA: S IN PROJECT :	34-0006	IN EST: OUT EST: DISTRICT: RTE: CO: KP:	04
TYPE:  LENGTH: WIDTH: AREA =  Substructure: 1 2 3	Seismic Safety Skyway Stru Haunched Concret  2400.0 Meters 48.0 Meters 115200 m sq  CONTRACT ITEM	Project Icture Box Girder  NUMBER OF STRUCTURE	CU: EA: S IN PROJECT :	04	DISTRICT: RTE: CO:	04 80
TYPE:  LENGTH: WIDTH: AREA =  Substructure: 1 2 3	Seismic Safety Skyway Stru Haunched Concret  2400.0 Meters 48.0 Meters 115200 m sq  CONTRACT ITEM	Project Icture Box Girder  NUMBER OF STRUCTURE	CU: EA: S IN PROJECT :	04	RTE: CO:	80
TYPE:  LENGTH: WIDTH: AREA =  Substructure: 1 2 3	Skyway Stru Haunched Concret  2400.0 Meters 48.0 Meters 115200 m sq  CONTRACT ITEM	e Box Girder  NUMBER OF STRUCTURE	CU: EA: S IN PROJECT :	04	RTE: CO:	80
LENGTH: WIDTH: AREA =  Substructure:  1 2 3	Haunched Concret  2400.0 Meters  48.0 Meters  115200 m sq  CONTRACT ITEM	e Box Girder  NUMBER OF STRUCTURE  QU	EA:		CO:	
LENGTH: WIDTH: AREA =  Substructure:  1 2 3	2400.0 Meters 48.0 Meters 115200 m sq  CONTRACT ITEM	NUMBER OF STRUCTURE	S IN PROJECT :	01200K	•	ALA/SF
WIDTH: AREA =  Substructure: 1 2 3	48.0 Meters 115200 m sq CONTRACT ITEM	QI			KP:	
WIDTH: AREA =  Substructure: 1 2 3	48.0 Meters 115200 m sq CONTRACT ITEM	QI				
AREA =	115200 m sq  CONTRACT ITEM		DDICEC DV.		EST. NO.	
Substructure: 1 2 3	CONTRACT ITEM		PRICES BY:		COST INDEX:	
1 2 3		A	JANTITIES BY:		DATE:	
1 2 3		QUANTITIES	CHECKED BY:		DATE:	
1 2 3			UNIT	QUANTITY	PRICE	AMOUNT
1 2 3	· Foundations	5   ITPE	UNIT	GUARTITT	PRICE	AMOUNT
2 3	FURNISH CISS CONC. PILING 2.5 M		m	13,430		
3	FURNISH CISS CONC. PILING 1.5 M		m	14,260		
	DRIVE CISS CONC. PILING 2.5 M		EA	132		
	DRIVE CISS CONC. PILING 2.5 M		EA	162		
5	PRESTRESSING	1,233,900	LS	1		
6	STRUCTURAL CONCRETE, BRIDGE		m3	45,700		
7	BAR REINFORCING STEEL (EPOXY		kg	8,230,000		
8	MISCELLANEOUS METAL BRIDGE,		kg	716,000		
Substructure:		COLLAR	kg	710,000	* * * * * * * * * * * * * * * * * * * *	
1	STRUCTURAL CONCRETE, BRIDGE		m3	19,500		
2	BAR REINFORCING STEEL (BRIDGE		kg	1,190,000		
3	BAR REINFORCING STEEL (EPOXY		kg	3,580,000		
4	MISCELLANEOUS METAL BRIDGE	COATED)	kg	65,000		
Superstructur			кg	05,000		
1	PRESTRESSING, STRANDS	5,945,000	LS	1		
2.	PRESTRESSING, RODS	104,000	LS	1		
3	STRUCTURAL CONCRETE, BRIDGE		m3	21,900		
4	STRUCTURAL CONCRETE, BRIDGE		m3	14,100		
5	STRUCTURAL CONCRETE, BRIDGE		m3	74,000		
6	FURNISH/INSTALL DECK OVERLAY		m2	115,000		
7	BEARING DEVICE		EA	80		
8	JOINT SEAL ASSEMBLY		m	350		
9	BAR REINFORCING STEEL (BRIDGE	3	kg	12,900,000		
10	FURNISH/ERECT STRUCTURAL ST		kg	640,000		
11	MISCELLANEOUS METAL BRIDGE	-LL (DITIDUL)	kg	60,000		
12	CONCRETE BARRIER		m i	9,612	× = 1	
Other	CONORE LE DANNIER		111	0,012	2,100	
1	FENDER SYTEMS		LS	1		
2	ADD GIRDER SPAN FROM HINGE		m	0		
3	TEMPORARY CONSTRUCTION ACC	FSS	LS	1		
4	CONCRETE SEAL		LS	1		
	CONTRIL OLAL		SUBTOTAL	<u> </u>		\$406,420,500
			CODIOIAL	MOBILIZATION	(@ 10%)	\$45,157,83
	•		SUBTOTAL BR		(8 1070)	\$451,578,33
COMMENTS				ION CONTINGE	NCIES @ 25%	\$60,029,750
COMMENTS			IOUITOAI	IOIT CONTINUED		
COMMENTS						
COMMENTS	<del></del>			IRE CONTINGEN		\$31,041,533 \$542,649,616

The second of the second	IFORNIA • DEPARTMENT OF TRANSPORTATION ENERAL PLAN ESTIMATE		IING ESTIMATE			
	200		RCVD BY:	RAF	IN EST:	
	0.5	D D: 1 - 5 - 10			OUT EST:	
DDIDCI	San Francisco - Oakland		DD No.	34-0006	DISTRICT:	04
BRIDGI			_			
mvm.	Skyway S		_	04	RTE:	
TYPI	E: Uniform Depth C	oncrete Girder	- EA	01200K	KP:	ALA/SF
				15	Kr.	
LENGTI		NUMBER OF STRUCTUR	ES IN PROJECT	:	EST. NO.	
WIDTH			PRICES BY	:	COST INDEX:	
AREA	= 115200 m sq		QUANTITIES BY	:	DATE:	
		QUANTITIE	S CHECKED BY	<u> </u>	DATE:	
	CONTRACT ITE	MS TYPE	UNIT	QUANTITY	PRICE	AMOUNT
Substructu	re: Foundations		<del></del>			
1	FURNISH CISS CONC. PILING 2.5	5 M	m	17,000		
2	FURNISH CISS CONC. PILING 1.5	5 M	m	10,530		
3	DRIVE CISS CONC. PILING 2.5 M		EA	184		
4	DRIVE CISS CONC. PILING 1.5 M		EA	108	×	
5	PRESTRESSING	1,530,900	LS	1		
6	STRUCTURAL CONCRETE, BRID	GE FOOTING	m3	56,700		
7	BAR REINFORCING STEEL (EPO	XY COATED)	kg	10,210,000		
8	MISCELLANEOUS METAL BRIDG	E, COLLAR	kg	887,000		
Substructu	re: Piers					
1	STRUCTURAL CONCRETE, BRID		m3	23,500		
2	BAR REINFORCING STEEL (BRID	OGE)	kg	1,470,000		
3	BAR REINFORCING STEEL (EPO	XY COATED)	kg	4,410,000		
4	MISCELLANEOUS METAL BRIDG	E	kg	60,000		
Superstruc	707					
1	PRESTRESSING, STRANDS	5,238,000		11		
2	PRESTRESSING, RODS	0	LS	0		
3	STRUCTURAL CONCRETE, BRID		m3	18,000		
4	STRUCTURAL CONCRETE, BRID		m3	78,600		
5	FURNISH/INSTALL DECK OVERL	AY	m2	115,000		
6	BEARING DEVICE		EA	100		
7	JOINT SEAL ASSEMBLY		m	350		
8	BAR REINFORCING STEEL (BRID		kg	12,200,000		
9	FURNISH/ERECT STRUCTURAL		kg	932,000		
10	MISCELLANEOUS METAL BRIDG	E	kg	60,000		
11 Other	CONCRETE BARRIER		m	9,508	·	
Other 1	FENDER SYTEMS	· · · · · · · · · · · · · · · · · · ·	LS	1		
2	ADD GIRDER SPAN FROM HINGS		m	13		
3	TEMPORARY CONSTRUCTION A		LS	1		
4	CONCRETE SEAL	OCE33	LS	1		
	CONCRETE SEAL		1.5	<u> </u>		
<u></u>			SUBTOTAL			\$415,477,750
			JODIOIAL	MOBILIZATION	(@ 10%)	\$46,164,194
COMMENT	-c.		SUBTOTAL BE		(5 10/0)	\$461,641,94
- SIMINE IN	<u>.                                    </u>			TION CONTINGE	NCIES @ 25%	\$66,656,150
<del></del>				URE CONTINGEN		\$28,560,139
		12 No. 10 No. 10	BRIDGE TOTA			\$556,858,233
COST PER	SQ. METER \$4,834	7		PURPOSES - SA	Υ	\$556,900,000

	GENERAL PLAN ESTIMATE		NG ESTIMATE			
			RCVD BY:	RAF	IN EST:	
	Con Francisco Coldend B	Bridge Foot Coop			OUT EST:	
BRIDG	San Francisco - Oakland Ba		DD No.	34-0006	DISTRICT:	04
DKIDO					RTE:	
ms m	Skyway Stru			04		
TYP	PE: Uniform Depth St	eei Giraer	EA:	01200K	KP:	ALA/SF
LENGT	TH: 2400.0 Meters	NUMBER OF STRUCTURE	S IN PROTECT		EST. NO.	
WIDT		NOMBER OF STRUCTURE	PRICES BY		COST INDEX:	
AREA						
AREA	1 = 113200 H1 Sq		UANTITIES BY:		DATE:	
	B 5 - 2 - 2 - 1		CHECKED BY:		DATE:	
	CONTRACT ITEMS	S TYPE	UNIT	QUANTITY	PRICE	AMOUNT
Substructu	ure: Foundations					
1	FURNISH CISS CONC. PILING 2.5 M		m	11,090		
2	FURNISH CISS CONC. PILING 1.5 M		m	8,910		
3	DRIVE CISS CONC. PILING 2.5 M		EA	120		
4	DRIVE CISS CONC. PILING 1.5 M		EA	90		
5	PRESTRESSING	1,050,300	LS	1		
6	STRUCTURAL CONCRETE, BRIDGE	FOOTING	m3	38,900		
7	BAR REINFORCING STEEL (EPOXY	COATED)	kg	7,002,000		
8	MISCELLANEOUS METAL BRIDGE, (	COLLAR	kg	640,000	1 1122	
Substructu	ure: Piers					
1	STRUCTURAL CONCRETE, BRIDGE		m3	14,300		
2	BAR REINFORCING STEEL (BRIDGE	)	kg	883,000		
3	BAR REINFORCING STEEL (EPOXY	The state of the s	kg	2,680,000		
4	MISCELLANEOUS METAL BRIDGE		kg	40,000		
Superstruc	cture		***			
1	FURNISH/INSTALL DECK OVERLAY		m2	114,000		
2.	BEARING DEVICE		EA	76		
3	JOINT SEAL ASSEMBLY		m	250		
4	FURNISH STRUCTURAL STEEL (BRI	DGE)	kg	62,220,000		
5	ERECT STRUCTURAL STEEL (BRIDG		kg	62,220,000		
6	CLEAN & PAINT STRUCTURAL STEE		LS	1		
7	MISCELLANEOUS METAL BRIDGE		kg	60,000		
8	HINGE ASSEMBLY		EA	10		
9	CONCRETE BARRIER		m	9,600		
	10 to					
Other						
1	FENDER SYTEMS		LS	1		
2	ADD GIRDER SPAN FROM HINGE		m	40		-
3	TEMPORARY CONSTRUCTION ACC	ESS	LS	1		
4	CONCRETE SEAL		LS	1		
				- T		
			<u> </u>			
, , , ,			SUBTOTAL			\$442,608,100
				MOBILIZATION	(@ 10%)	\$49,178,678
COMMENTS:			SUBTOTAL BF		1	\$491,786,778
			FOUNDATION CONTINGENCIES @ 25% \$46,499,0			
				URE CONTINGEN	The second secon	\$75,218,165
			BRIDGE TOTA			\$613,504,005
						<del>40.0,007,000</del>

BRIDGE GE	ENERAL PLAN ESTIMATE	OR PLANN	ING ESTIMATE			
			RCVD BY:	RAF	IN EST:	
	San Francisco Ockland B	av Bridge Feet Chen			OUT EST:	
BRIDGE	San Francisco - Oakland B Seismic Safety		BR No:	34-0006	DISTRICT: 04	
DRIDGE	Main Span with Sky	way Structure	-	04	RTE:	
TYPE			-	01200K		ALA/SF
		o box direct	- 221.	DIZOUR	KP:	
LENCTH	: 625.0 Meters	NID OF OTHER DE		J. 18		
LENGTH		NUMBER OF STRUCTURE			EST. NO.	
	= 30000 m sq		PRICES BY :		COST INDEX:	
AKEA =	= 30000 III sq	QUANTITIES BY: QUANTITIES CHECKED BY:			DATE:	
			~ · · · · · · · · · · · · · · · · · · ·		DATE:	
	CONTRACT ITEM	S TYPE	UNIT	QUANTITY	PRICE	AMOUNT
	e: West Pier (W2)					
	STRUCTURE EXCAVATION (BRIDG		m3	8,000		
	STRUCTURE EXCAVATION (BRIDG	E) TYPE H	m3	2,000		
	STRUCTURE BACKFILL (BRIDGE)		m3	4,000		
	CIDH CONC. PILING 2.5 M	1	m	80		
5	CIDH CONC. PILING 2.5 M (W/PERM CA	The state of the s	m	126		
7	STRUCTURAL CONCRETE, BRIDGE STRUCTURAL CONCRETE, BRIDGE		m3 m3	3,800 2,400		
8	BAR REINFORCING STEEL (BRIDGE		kg	1,940,000		
	e: Foundations (W1,A15E1,E2)	-/	l kg	1,540,000		
1	CIDH CONC. PILING 2.5M (w/PERM	CASING)	m	592		
2	FURNISH CISS CONC. PILING 2.5 M		m	2,336		
3	DRIVE CISS CONC. PILING 2.5 M		EA	32		
4	PRESTRESSING	320000	LS	1		
5	STRUCTURAL CONCRETE, BRIDGE		m3	12,800		
6	BAR REINFORCING STEEL (EPOXY		kg	4,864,000	*****	
7	MISCELLANEOUS METAL BRIDGE,		kg	186,160		
Substructure	e: Piers (W1,E1,E2)					
1	STRUCTURAL CONCRETE, BRIDGE		m3	7,140		
2	BAR REINFORCING STEEL (BRIDGE		kg	437,000		
3	BAR REINFORCING STEEL (EPOXY	COATED)	kg	1,310,000		
4	MISCELLANEOUS METAL BRIDGE		kg	150,000		
Superstructu						
1	PRESTRESSING		LS	11		
2	PRESTRESSING, RODS	57500	LS	1		
3	STRUCTURAL CONCRETE, BRIDGE		m3	3,700		
4	STRUCTURAL CONCRETE, BRIDGE		m3	19,300		
5	FURNISH/INSTALL DECK OVERLAY BEARING DEVICE		m2 EA	29,900 6		
7	JOINT SEAL ASSEMBLY			50		
8	BAR REINFORCING STEEL (BRIDGE	-	m ka	3,360,000		
9	FURNISH/ERECT STRUCTURAL ST		kg kg	167,000		
10	MISCELLANEOUS METAL BRIDGE	-LL (Brildal)	kg	15,600		7
11	CONCRETE BARRIER		m	2,500		
Other	OUTION END DATE IN		·	2,000		
1	FENDER SYTEMS		LS	1		
2	NORTH SLOPE STABILIZATION		LS	1		
3	CONCRETE SEAL		LS	1		
· •			SUBTOTAL			\$101,558,100
OMMENTS	3:			MOBILIZATION	(@ 10%)	\$11,284,230
			SUBTOTAL BR			\$112,842,333
				ONTINGENCIES	(@ 25%)	\$28,210,583
			BRIDGE TOTA		7,000	\$141,052,917
COST PER	SQ. METER \$4,702		IFOR BUDGET	PURPOSES - SA	Υ	\$141,100,000

H

# **Transition Structure Alternatives**

C-1 Transition Structure, 4.5m Concrete Box Deck
C-2 Transition Structure, 6.0m Concrete Box Deck

COST PER SQ. METER

\$2,628

**GRAND TOTAL** 

FOR BUDGET PURPOSES - SAY

55,240,625

55,200,000

**COST PER SQ. METER** 

\$2,877

# Oakland Plaza Alternatives

D-1 Oakland Plaza Approach Structure, Concrete Box Deck Oakland Plaza Approach Fill

D-2

BRIDGE	GENERAL PLAN ESTIMATE	OR P	LANNING ESTIMAT	E []		
			RCVD B	Y: RAF	IN EST:	
	San Francisco - Oaklan	d Ray Bridge East Sn	an		OUT EST:	
BRIDG		fety Project		o.: <b>34-0006</b>	DISTRICT:	04
		proach Segment		U: <b>04</b>	RTE:	
TYP				A: 01200K	_	ALA/SF
• • • •	Treat Apploaci	Olab Oli dolai c		OIZGOR	- KP:	
LENCE	105 221 420 Motore	Lun man or amy	YOTE THE ALITHOUSE		FOT NO	
	LENGTH: 105, 231, 430 Meters NUMBER OF STRUCTURE WIDTH: 25.0 Meters				EST. NO.	7-2-110
			PRICES B	2.76	COST INDEX:	
AREA	18384 m sq		QUANTITIES BY:			
		QUAI	QUANTITIES CHECKED BY:			
	CONTRACT IT	EMS TY	PE UNIT	QUANTITY	PRICE	AMOUNT
	Approach Box Structure					
1	STRUCTURE EXCAVATION (BR		PED m3	0		
2	STRUCTURE EXCAVATION (BR		PEH m3	825		
3	STRUCTURE BACKFILL (BRIDG	E)	m3	580		
4	FURNISH PILING		m	9,110		
5	DRIVE PILES		EA	506		
6	PRESTRESSING		000 LS	1		
7	STRUCTURAL CONCRETE, BRI	THE PARTY OF THE P	m3	1,850		
8	STRUCTURAL CONCRETE, BRI	DGE	m3	15,500		
9	EXPANSION JOINT		m m	0		
10	BAR REINFORCING STEEL (BR	IDGE)	kg	3,060,000		
_11	CONCRETE BARRIER		m	1,450		L
	roach Slab on Piles		,			
1	STRUCTURE BACKFILL (BRIDG	E)	m3	400		
2	FURNISH PILING		m	5,617		
3	DRIVE PILES		EA	274		
4	STRUCTURAL CONCRETE, BRI	DGE	m3	2,350		
5	EXPANSION JOINT		m	29		
6	BAR REINFORCING STEEL (BR	IDGE)	kg	348,000		
7,	WATERPROOFING		m2	5,500	<del> </del>	
8	MISCELLANEOUS METAL BRID	GE	kg	0	ļ	,
9	CONCRETE BARRIER		<u> </u>	430	J	
ther		<u> </u>		- <u>r</u>	<del></del>	<u></u>
				<u> </u>		
			0.15707:		J	
OM 454	TC.		SUBTOTAL	MODILIZATION		\$20,868,8
OMMEN	DMMENTS:			MOBILIZATION	N .	\$2,318,7
			SOBIOTAL	BRIDGE ITEMS	3 (0 050/)	\$23,187,5
			DDUDGE TO	CONTINGENCIES	o (@ 25%)	\$5,796,8
			BRIDGE TO		INO	\$28,984,4
			The state of the s	MOVAL (CONTIN.	INU.)	600.004
	COST DED CO. METER	64.577	GRAND TO		AV	\$28,984,4
	COST PER SQ. METER	\$1,577	IFOR BUDGE	T PURPOSES - S.	AY	\$29,0

BRIDGE G	ENERAL PLAN ESTIMATE	J OR P		ESTIMATE			
				RCVD BY:	RAF	IN EST:	
	San Francisco - Oakland Ba	av Bridge Fast Sn	an			OUT EST:	
BRIDGE			an	BR. No.:	34-0006	DISTRICT:	04
	Oakland Plaza Approach Segmen				04	RTE:	
TYPE	West Approach Fi				01200K	-	ALA/SF
124	Treat Approach 1				<u> </u>	KP:	
LENGTH	I: 105, 231, 430 Meters	NUMBER OF STRU	JCTURES I	N PROJECT :	To the six of	EST. NO.	
WIDTH		n Willem	Transfer	PRICES BY		COST INDEX:	
	= 18384 m sq	No and Page 1	OUA	NITTIES BY:	- 40 c	DATE:	
		OUA		HECKED BY		DATE:	
	CONTRACTITEMS						AMOUNT
Congrete A	CONTRACT ITEMS oproach Box Structure	<u> </u>	YPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE	E) TV	PE D				
2	REMOVAL HAZARDOUS MATERIAL		PEH	V			
3	STRUCTURE BACKFILL (BRIDGE)		1011		<b></b>		
4	FURNISH PILING						
5	DRIVE PILES	····			<del>      -   -   -   -   -   -  </del>		<del></del>
6	PRESTRESSING	73	3000				
7	STRUCTURAL CONCRETE, BRIDGE						
8	STRUCTURAL CONCRETE, BRIDGE						
9	EXPANSION JOINT						
10	BAR REINFORCING STEEL (BRIDGE	Ξ)					
11	CONCRETE BARRIER						
West Appro	ach Fill	*****	<del></del>	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<u> </u>		
1	IMPORTED BORROW						
2	FILTER FABRIC						
3	WATERPROOFING						
4	CONCRETE BARRIER						
5	SLOPE PROTECTION						
6	PERMEABLE BASE						
7	SURCHARGE						
8	WICK DRAINS						
Other					<u> </u>	· <u> </u>	
- I		· · · · · · · · · · · · · · · · · · ·		"	1	T T	
<del></del>							
			SI	JBTOTAL	1		\$25,111,26
COMMENT	S:		F		MOBILIZATION		\$2,790,14
			si	JBTOTAL BF	RIDGE ITEMS		\$27,901,40
					ONTINGENCIES (	@ 25%)	\$6,975,35
			BF	RIDGE TOTA			\$34,876,75

SUM2

COST PER SQ. METER

\$1,897

BRIDGE REMOVAL (CONTIN. INC.)

FOR BUDGET PURPOSES - SAY

\$34,876,750

\$34,900,000

**GRAND TOTAL** 

### **YBI Detour Structure Alternatives**

E N/N YBI Detour Structure North/North, Temp Structure & Viaduct Modifications E N/S YBI Detour Structure North/South, Temp Structure & Viaduct Modifications E S/S YBI Detour Structure South/South, Temp Structure & Viaduct Modifications

	FORNIA • DEPARTMENT OF TRANSPORTATION ENERAL PLAN ESTIMATE		OR PLANN	NG ESTIMATE			
				RCVD BY:	RAF	IN EST:	
	0 5 1 0 11 15					OUT EST:	
BRIDGE	San Francisco - Oakland B		st Span	DD No.	34-0006	DISTRICT:	04
BKIDGE				-			
TVDE	Detour Structural Com		nate	_	04	RTE:	
TYPE	S: North-North	Detour		- EA:	01200K	•	ALA/SF
						KP:	
LENGTH	I: 400.0 Meters	NUMBER OF	STRUCTUR	ES IN PROJECT	:	EST. NO.	
WIDTH	I: 48.0 Meters			PRICES BY	:	COST INDEX:	
AREA :	= 19200 m sq		Ç	QUANTITIES BY:			
	*		QUANTITIE	S CHECKED BY	:	DATE:	
	CONTRACT ITEMS	2	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
Detour Stru			ITPE	UNI	QUANTITY	PRICE	ANICONI
1	STRUCTURE EXCAVATION (BRIDG	E)	TYPE D	m3	0	T	
2	STRUCTURE EXCAVATION (BRIDG		TYPE H	m3	4,900	·	· · · · · · · · · · · · · · · · · · ·
3	STRUCTURE BACKFILL (BRIDGE)	<u>-,                                    </u>	111 - 11	m3	2,250	<del> </del>	<u> </u>
4	CIDH CONC. PILING .46 m			m	7,360	<del> </del>	
5	ROCK ANCHORS			m	2,730		<del> </del>
6	STRUCTURAL CONCRETE, BRIDGE	FOOTING		m3	3,400	-	
7	STRUCTURAL CONCRETE, BRIDGE			m3	3,880		
8	EXPANSION JOINT	-		m	1,000		
9	BAR REINFORCING STEEL (BRIDGI	=1		kg	924,000		
10	FURNISH STRUCTURAL STEEL (BR			kg	4,850,000		
11	ERECT STRUCTURAL STEEL (BRID			kg	4,850,000	<b>!</b>	
12	CLEAN & PAINT STRUCTURAL STE			LS	1		
13	METAL RAILING			m	1,930		<u> </u>
14	DETOUR TIE-IN			LS	1		
15	BRIDGE REMOVAL			LS	1 1		
Viaduct Mod				1 20	<u> </u>	L	
1	BRIDGE REMOVAL, CONCRETE			m3	920		
2	STRUCTURE EXCAVATION (BRIDG	F)	TYPE D	m3	840		
3	STRUCTURE EXCAVATION (BRIDG		TYPE H	m3	4,550		
4	STRUCTURE BACKFILL (BRIDGE)	-/		m3	2,190		
5	PRESTRESSING		311511kg	LS	1		
6	STRUCTURAL CONCRETE, BRIDGE	FOOTING	orroring	m3	2,210		
7	STRUCTURAL CONCRETE, BRIDGE			m3	3,340		
8	STRUCTURAL CONCRETE, RETAIN			m3	260		
9	BAR REINFORCING STEEL (BRIDGI			kg	644,000	***	
10	BAR REINFORCING STEEL (RETAIN			kg	16,900		
11	CORE CONCRETE (1")			m	474		
12	CORE CONCRETE (1 1/2")			kg	474		
13	DRILL AND BOND DOWEL(EPOXY O	ARTRIDGE)		m	782		
14	CONCRETE BARRIER			m	333		
15	COLUMN CASING			kg	5,300		
Other				-	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
					T .		
· · · · · · · · · · · · · · · · · · ·				SUBTOTAL	· · · · · · · · · · · · · · · · · · ·		\$35,244,688
COMMENTS	S:		30		MOBILIZATION		\$3,916,076
			•	SUBTOTAL BE	RIDGE ITEMS		<b>\$39,</b> 160,764
******			•	С	ONTINGENCIES	(@ 25%)	\$9,790,191
			•	<b>BRIDGE TOTA</b>	L COST		\$48,950,956
			•	BRIDGE REMO	OVAL (CONTIN. II	NC.)	
groun			_	GRAND TOTAL			\$48,950,956
Γ	COST PER SQ. METER	\$0	]	FOR BUDGET	<b>PURPOSES - SA</b>	Y	\$49,000,000

HIDGE G	ENERAL PLAN ESTIMATE	alpyris	OR PLANN	NG ESTIMATE			
		2.2		RCVD BY:	RAF	IN EST:	
	San Francisco Cakland Br	nu Bridge Coe	t Coon			OUT EST:	
BRIDGI	San Francisco - Oakland Ba E: Seismic Safety		a Span	BR No:	34-0006	DISTRICT:	04
DKIDGI	Detour Structural Com		noto.	•	04	RTE:	
TVDI			iate	•			ALA/SF
TYPI	E: North-South	Detour		- EA:	01200K	KP:	ALA/SF
		,				Kr.	
LENGTI		NUMBER OF	STRUCTURI	ES IN PROJECT :		EST. NO.	mineral in
WIDTH	H: 48.0 Meters			PRICES BY :		COST INDEX:	
AREA	= 19200 m sq		Q	UANTITIES BY:	24.76	DATE:	
		QUANTITIES CHE		CHECKED BY:		DATE:	
	CONTRACT ITEMS	3	TYPE	UNIT	QUANTITY	PRICE	AMOUN
etour Stru				0	1 407		7
1	STRUCTURE EXCAVATION (BRIDGE	E)	TYPE D	m3	0		
2	STRUCTURE EXCAVATION (BRIDGE		TYPE H	m3	4,550		
3	STRUCTURE BACKFILL (BRIDGE)	•	***************************************	m3	2,240		
4	CIDH CONC. PILING .46 m			m	5,850		
5	ROCK ANCHORS			m	2,880		
6	STRUCTURAL CONCRETE, BRIDGE	FOOTING		m3	3,260		· ·····
7	STRUCTURAL CONCRETE, BRIDGE			m3	3,440		
8	EXPANSION JOINT			m	800		
9	BAR REINFORCING STEEL (BRIDGE	Ξ)		kg	842,000		
10	FURNISH STRUCTURAL STEEL (BR			kg	4,560,000		
11	ERECT STRUCTURAL STEEL (BRID			kg	4,560,000		
12	CLEAN & PAINT STRUCTURAL STE	EL		LS	1		
13	METAL RAILING			m	1,680		
14	DETOUR TIE-IN			LS	1	20%	
15	BRIDGE REMOVAL			LS	1		
aduct Mo	difications						
1	BRIDGE REMOVAL, CONCRETE			m3	1,753		
2	STRUCTURE EXCAVATION (BRIDGE	<b>E</b> )	TYPE D	m3	1,540		
3	STRUCTURE EXCAVATION (BRIDGI	Ε)	TYPE H	m3	6,700		
4	STRUCTURE BACKFILL (BRIDGE)			m3	3,290		
5	PRESTRESSING		78954	LS	1		
6	STRUCTURAL CONCRETE, BRIDGE	FOOTING		m3	3,230		
7	STRUCTURAL CONCRETE, BRIDGE			m3	4,550		
8	STRUCTURAL CONCRETE, RETAIN	ING WALL		m3	260		
9	BAR REINFORCING STEEL (BRIDGE			kg	863,000		
10	BAR REINFORCING STEEL (RETAIN	IING WALL)		kg	16,900		
11	CORE CONCRETE (1")			m	807		
12	CORE CONCRETE (1 1/2")			kg	807		
13	DRILL AND BOND DOWEL(EPOXY C	ARTRIDGE)		m	1,334		
14	CONCRETE BARRIER			, m	0		
15	COLUMN CASING			kg	5,300		· · · · · · · · · · · · · · · · · · ·
her						·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·	
				SUBTOTAL		<del></del>	\$34,861,
MMENT	S:				MOBILIZATION		\$3,873
				SUBTOTAL BE			\$38,735,
					ONTINGENCIES (	<b>@</b> 25%)	\$9,683,
				BRIDGE TOTA	L COST		\$48,419
				BRIDGE REMO	OVAL (CONTIN. IN	C.)	\$48,419,

BRIDGE G	ENERAL PLAN ESTIMATE	OR PLANN	ING ESTIMATE		}		
1			RCVD BY:	RAF		IN EST:	
	San Francisco - Oakland Ba	v Bridge East Span				OUT EST:	
BRIDG			BR. No.:	34-00	06	DISTRICT:	04
<b>D</b> 11120	Detour Structural Comp		CU:			RTE:	
TYP			-	01200	K		ALA/SF
	South-South L	Jetoui	<b>-</b> LA.	01200		KP:	ALAGI
							·
LENGT		NUMBER OF STRUCTUR				EST. NO.	
WIDT			PRICES BY :			COST INDEX:	
AREA	= 19200 m sq		QUANTITIES BY: QUANTITIES CHECKED BY:			DATE:	
	South Marie State of the	QUANTITIE				DATE:	
	CONTRACT ITEMS	TYPE	UNIT	QUA	NTITY	PRICE	AMOUNT
Detour Stru	ucture						
1	STRUCTURE EXCAVATION (BRIDGE	TYPE D	m3		0		
2	STRUCTURE EXCAVATION (BRIDGE	TYPE H	m3		600		
3	STRUCTURE BACKFILL (BRIDGE)		m3		160		
4	CIDH CONC. PILING .46 m		m		680		
5	ROCK ANCHORS		m	_	189		
6	STRUCTURAL CONCRETE, BRIDGE	FOOTING	m3	+	450		W SHIFT AND A
7	STRUCTURAL CONCRETE, BRIDGE		m3		460		
8	EXPANSION JOINT		m		142		
9	BAR REINFORCING STEEL (BRIDGE		kg	-	,000		
10	FURNISH STRUCTURAL STEEL (BRI		kg		0,000		
11	ERECT STRUCTURAL STEEL (BRIDG	Andrew transport of Control of Co	kg	5,18	0,000		·
12	CLEAN & PAINT STRUCTURAL STEE	<u>:L</u>	LS	<del> </del>	1		
13	METAL RAILING		m	1,	688		
14 15	DETOUR TIE-IN		LS	-	1		
	BRIDGE REMOVAL additions		l ro	L	1		
1	BRIDGE REMOVAL, CONCRETE		m3	1	830		
2	STRUCTURE EXCAVATION (BRIDGE	TYPE D	m3	-	710		
3	STRUCTURE EXCAVATION (BRIDGE		m3		250		
4	STRUCTURE BACKFILL (BRIDGE)	, , , , , , , , , , , , , , , , , , ,	m3	<del></del>	500		
5	PRESTRESSING	94906kg	LS	<del></del>	1		
6	STRUCTURAL CONCRETE, BRIDGE		m3		670		
7	STRUCTURAL CONCRETE, BRIDGE		m3		500		
8	STRUCTURAL CONCRETE, RETAINI	NG WALL	m3		60		
9	BAR REINFORCING STEEL (BRIDGE		kg		,000	J. C. 10	*
10	BAR REINFORCING STEEL (RETAIN	<u> </u>	kg		900		
11	CORE CONCRETE (1")	•	m	7	81		
12	CORE CONCRETE (1 1/2")		kg	7	81		
13	DRILL AND BOND DOWEL(EPOXY C.	ARTRIDGE)	m	1,	292		
10.8001.0100						v	
ther							
			SUBTOTAL				\$31,932,
OMMENT	S:				IZATION		\$3,548,
			SUBTOTAL BR		711/000	0.000	\$35,480,
					SENCIES (	@ 25%)	\$8,870,
			BRIDGE TOTA			0.	\$44,350,
			BRIDGE REMO		UNTIN. IN	U.)	644.050
			GRAND TOTAL		SES - SAY		\$44,350, <b>\$44,400</b> ,

# **Bikeway Alternatives**

BK-1D	Bikeway with Single Lane Depressed
BK-1L	Bikeway with Single Lane Level
BK-2D	Bikeway with Two Lane Depressed
BK-2L	Bikeway with Two Lane Level

MARGINA	L ESTIMATE - MISCELLANEOUS ST	RUCTURES				
CTRIC	- Oakland Bay		RCVD BY	RAF	IN EST	
STRUC			_		OUT EST	
		Addition		34-0006	DISTRICT	
	TYPE: Single Lane - Depre	essed from Roadway		: 04	RTE	
			EA	01200K	•	: ALA/SF
					KP	·
LENGTH		NUMBER OF STRUCTU			EST. NO	
WIDTH		PRICES BY		COST INDEX		
AREA:	= 13154.4 m sq		QUANTITIES BY		DATE	
			ES CHECKED BY		DATE	
	CONTRACT IT			QUANTITY	PRICE	AMOUNT
Transition		432.0 m	<del></del>	T - 550		
1	CIDH PILES PRESTRESSING STEEL	172000	LS	570	<b> </b>	ļ
3	STRUCTURAL CONCRETE, BI	173900 PIDGE	m3	1,290		
4	FURNISH/INSTALL DECK OV		m2	0	<del> </del>	<del> </del>
5	JOINT SEAL ASSEMBLY		m	12		
6	BAR REINFORCING STEEL (B	RIDGE)	kg	155,000		
7	MISCELLANEOUS METAL BR		kg	5,000		
8	SEPARATION RAILING		m	402		
9	BIKEWAY RAILING		m	402		
10	RAMP TRANSITION		m	30	L	
Mair	1. Contileue (C	Toward AFE		L		
	& Cantilevers (Suspension w/Dual		T2	2 270	r	T **
2	FURNISH/INSTALL DECK OVI JOINT SEAL ASSEMBLY	ALLA I	m2 m	2,270		<del> </del>
2	FURNISH/ERECT STRUCTURA	AI STEEL	kg	234,000		<del>                                     </del>
3	FURNISH/ERECT CABLE WIR		kg	34,500		
4	CLEAN & PAINT STRUCTURA		m2	4,500		
5	MISCELLANEOUS METAL BR		kg	6,480		
6	SEPARATION RAILING		m	630		
7	BIKEWAY RAILING		m	630		
kyway (As	ssume Haunched Concrete Superstr	<i>ucture</i> ) 2400.0 m				4 40 0
1	FURNISH PILES		m	600		
2	DRIVE PILES		EA	0		
3	PRESTRESSING, LONGITUDIA			1		
4	PRESTRESSING, TRANSVERS		LS	1 (20)		
6	STRUCTURAL CONCRETE, BI STRUCTURAL CONCRETE, BI		m3	5,310		
7	FURNISH/INSTALL DECK OVI		5310 m2	8,640		
8	BAR REINFORCING STEEL (B		kg	738,000		
9	JOINT SEAL ASSEMBLY	(dDGL)	m m	16		
10	MISCELLANEOUS METAL BR	IDGE	kg	19,200		
11	SEPARATION RAILING		m	2,400		
12	BIKEWAY RAILING		m	2,400		
Dakland Pl	laza Structure	197.0 m				
I	FURNISH PILES		m	128		
2	DRIVE PILES	11870	EA	8		
3	PRESTRESSING STEEL	44560 PIDGE	LS m <sup>2</sup>	210	<del></del>	<del>                                     </del>
5	STRUCTURAL CONCRETE, BI FURNISH/INSTALL DECK OVI		m3 m2	210		<del>                                     </del>
5	JOINT SEAL ASSEMBLY	ENLAI	m m	4		
6	BAR REINFORCING STEEL (B	RIDGE)	kg	24,500		<del>                                     </del>
7	MISCELLANEOUS METAL BR		kg	840		
8	SEPARATION RAILING		m	105		
9	BIKEWAY RAILING		m	105		
10	TRANSITION/ROADWAY		M	92		
					*1	
ighting			_			
	BIKEWAY LIGHTING		LS	1		
	BIKEWAY APURTENANCES		LS	1		A22.540.060
701 A A	TTO.				\$22,548,960	
COMMEN	13:	MOBILIZATION (@ 10%) SUBTOTAL BRIDGE ITEMS			\$2,505,440	
		77		NTINGENCIES		\$25,054,400 \$6,263,600
			BRIDGE TO		(8 2370)	\$31,318,000
			GRAND TO			\$31,318,000
Г	COST PER SQ. METER	\$2,381		T PURPOSES -	SAY	\$31,300,000
L		1 42,501	- ON DODGE			451,500,00

	CTDLICTURE. Con Francisco Onkland Boy Bridge			RCVD BY: RAF IN EST:			
STRUC	TURE: San Francisco- Oal	kland Bay Bridg	ge	-		OUT EST:	
	Bikeway A			-	34-0006	DISTRICT:	4
	TYPE: Single Lane - Le	vel w/Roadway		-	04	RTE:	
				EA:	01200K		ALA/SF
		r ·				KP:	
LENGT		NUMBER OF S	TRUCTURI	ES IN PROJECT :		EST. NO.	
WIDT				PRICES BY		COST INDEX:	
AREA	= 13154.4 m sq			UANTITIES BY:		DATE:	
				CHECKED BY:		DATE:	
	CONTRACT ITE	MS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1 ransutor 1	Structure CIDH PILES		432.0 m		570		
2	PRESTRESSING STEEL		173900	LS	1		
3	STRUCTURAL CONCRETE, BR		113300	m3	1,000		
4	FURNISH/INSTALL DECK OVE			m2	0		
5	JOINT SEAL ASSEMBLY			m	12		
6	BAR REINFORCING STEEL (BR	IDGE)		kg	120,000		
7	MISCELLANEOUS METAL BRI	DGE		kg	5,000		
8	SEPARATION RAILING			m	402		
9 10	BIKEWAY RAILING RAMP TRANSITION	7		m m	402 30		
10	RAME TRANSITION			m_		L	-
Mainspan	& Cantilevers (Suspension w/Dual T	owers)	625.0 m		L		
1	FURNISH/INSTALL DECK OVE			m2	2,270		
2	JOINT SEAL ASSEMBLY			m	4		
2	FURNISH/ERECT STRUCTURAL	L STEEL		kg	234,000		
3	FURNISH/ERECT CABLE WIRE		· ·	kg	34,500		
4	CLEAN & PAINT STRUCTURAL			m2	4,500		
5	MISCELLANEOUS METAL BRI	DGE		kg	6,480		
6 7	SEPARATION RAILING BIKEWAY RAILING			m m	630		
	BIKEWAT KAILING			T	630		
Skyway (A	Assume Haunched Concrete Superstru	cture)	2400.0 m		· · · · · · · · · · · · · · · · · · ·		
1	FURNISH PILES	***************************************		m	600		
2	DRIVE PILES			EA	0		
3	PRESTRESSING, LONGITUDINA	AL	129,000	LS	1		
4	PRESTRESSING, TRANSVERSE		272460	LS	1		
5	STRUCTURAL CONCRETE, BR			m3	806		
6	STRUCTURAL CONCRETE, BR		ght)	5310	3,400		
7 8	FURNISH/INSTALL DECK OVER BAR REINFORCING STEEL (BR			m2	8,640		
9	JOINT SEAL ASSEMBLY	IDGE)		kg m	510,000 16		
10	MISCELLANEOUS METAL BRI	DGE		kg	19,200		
11	SEPARATION RAILING			m	2,400		
12	BIKEWAY RAILING			m	2,400		
	Plaza Structure		197.0 m				
1	FURNISH PILES	· · · · · · · · · · · · · · · · · · ·		m TA	128		
3	DRIVE PILES PRESTRESSING STEEL		44560	EA LS	8		
4	STRUCTURAL CONCRETE, BR	IDGE	77,500	m3	150		***************************************
5	FURNISH/INSTALL DECK OVER			m2	0		
5	JOINT SEAL ASSEMBLY			m	4		
6	BAR REINFORCING STEEL (BR			kg	19,000		
7	MISCELLANEOUS METAL BRI	DGE		kg	840		
8	SEPARATION RAILING			m	105		
9	BIKEWAY RAILING			m	105		
10	TRANSITION/ROADWAY			M	92		
Lighting							
5'##II'E	BIKEWAY LIGHTING			LS	1		
	BIKEWAY APURTENANCES			LS	i		
					BRIDGE ITEMS		\$19,925,360
COMMENTS:					OBILIZATION		\$2,213,929
					BRIDGE ITEMS		\$22,139,289
	***				NTINGENCIES	(@ 25%)	\$5,534,822
•				BRIDGE TOT	·		\$27,674,111
1	COST PER SO A STORE	\$2.104		GRAND TOT		CAV	\$27,674,111
	COST PER SQ. METER	\$2,104		LOK BODGE	T PURPOSES -	om I	\$27,700,000

315

					RAF	IN EST:		
STRUC	CTURE: Oakland Bay			<u>=</u> :		OUT EST:		
	Bikeway A			BR. No.:	34-0006	DISTRICT:	04	
	TYPE: Two Side Lanes - Depr	essed from Ro	padway	-	04	RTE:		
				EA:	01200K	S	ALA/SF	
						KP:		
LENGT		NUMBER OF	STRUCTUR	RES IN PROJECT : EST. NO.				
WIDT:				PRICES BY :		COST INDEX:		
AREA	a = 21600.0 m sq			UANTITIES BY:		DATE:		
				S CHECKED BY:		DATE:		
T	CONTRACT ITE	EMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT	
1 ransinor	n Structure  CIDH PILES		467.0 m	m	1,140		T	
2	PRESTRESSING STEEL		173900	LS	1,140			
3	STRUCTURAL CONCRETE, BR	IDGE		m3	2,000			
4	FURNISH/INSTALL DECK OVE	RLAY		m2	0			
5	JOINT SEAL ASSEMBLY			m	24			
6	BAR REINFORCING STEEL (BR			kg	240,000			
7	MISCELLANEOUS METAL BRI	DGE		kg	10,000			
9	SEPARATION RAILING BIKEWAY RAILING			m m	804 804			
10	RAMP TRANSITION			m	65			
				1		·		
Mainspan	& Cantilevers (Suspension w/Dual T		625.0 m					
1	FURNISH/INSTALL DECK OVE	RLAY		m2	3,750			
2	JOINT SEAL ASSEMBLY	OTES		m	8			
3	FURNISH/ERECT STRUCTURAL FURNISH/ERECT CABLE WIRE		***************************************	kg kg	468,000 69,000			
4	CLEAN & PAINT STRUCTURAL			m2	9,000			
5	MISCELLANEOUS METAL BRI			kg	12,960			
6	SEPARATION RAILING			m	1,260			
7	BIKEWAY RAILING			m	1,260			
							···	
<b>6</b> 1					L			
Skyway (A	Assume Haunched Concrete Superstru FURNISH PILES	cture)	2400.0 m	T	1 200			
2	DRIVE PILES			EA	1,200			
3	PRESTRESSING, LONGITUDINA	AL	129,000	LS	1			
4	PRESTRESSING, TRANSVERSE		272460	LS	1			
5	STRUCTURAL CONCRETE, BR			m3	1,612			
6	STRUCTURAL CONCRETE, BR		eight)	5310	6,800			
7	FURNISH/INSTALL DECK OVE			m2	14,400			
8	BAR REINFORCING STEEL (BR JOINT SEAL ASSEMBLY	IDGE)	1777	kg	1,020,000			
10	MISCELLANEOUS METAL BRI	DCE.		m kg	32 38,400			
11	SEPARATION RAILING	JOD		m	4,800			
12	BIKEWAY RAILING			m	4,800			
	Plaza Structure		167.0 m		255			
2	FURNISH PILES DRIVE PILES			EA	256			
3	PRESTRESSING STEEL	·	44560	LS	16 1			
4	STRUCTURAL CONCRETE, BR	IDGE		m3	300			
5	FURNISH/INSTALL DECK OVE			m2	0			
5	JOINT SEAL ASSEMBLY			m	8			
6	BAR REINFORCING STEEL (BR			kg	38,000			
7	MISCELLANEOUS METAL BRID	DGE		kg	1,680			
<u>8</u> 9	SEPARATION RAILING BIKEWAY RAILING	·		m m	<b>210</b> 210		***	
10	TRANSITION/ROADWAY			m m	184			
				•				
Lighting				,				
	BIKEWAY LIGHTING			LS	1			
l	BIKEWAY APURTENANCES			LS SUBTOTAL E	1 PDIDGE FTEMS		CAE 121 000	
COMME	COMMENTS:				SUBTOTAL BRIDGE ITEMS \$45,131,92  MOBILIZATION (@ 10%) \$5,014,65			
	CAMPAGE 11.				MOBILIZATION (@ 10%) \$5,014,65 SUBTOTAL BRIDGE ITEMS \$50,146,57			
			•		VIINGENCIES		\$12,536,644	
			9	BRIDGE TOT			\$62,683,222	
				GRAND TOT.			\$62,683,222	
	COST PER SQ. METER	\$4,765		FOR BUDGE	F PURPOSES - :	SAY	\$62,700,000	

MARGIN	AL ESTIMATE - MISCELLANEOUS STR	RUCTURES					
		Haraging Street		RCVD BY:	RAF	IN EST:	
STRUC	CTURE: San Francisco- Oal	kland Bay Bri	dge	=		OUT EST:	
	Bikeway A			-	34-0006	DISTRICT:	
	TYPE: Two Side Lanes - I	evel w/Roadv	vay		04 01200K	RTE:	
				EA:	01200K	KP:	ALA/SF
LENCT	H: <b>3600.0</b> m	NAD COLOR	-	20 ILLED OFF OF	*		<del> </del>
LENGT		NUMBER OF	SIRUCIUR	PRICES BY		EST. NO.  COST INDEX:	-
AREA			-	UANTITIES BY:		DATE:	
				CHECKED BY:		DATE:	
	CONTRACT ITE	MS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
	Structure		467.0 m				
1	CIDH PILES		183000	m	1,140		
3	PRESTRESSING STEEL STRUCTURAL CONCRETE, BR	IDGE	173900	LS m3	2,000		
4	FURNISH/INSTALL DECK OVE			m2	0		
5	JOINT SEAL ASSEMBLY			m	24		
6	BAR REINFORCING STEEL (BR			kg	240,000		
8	MISCELLANEOUS METAL BRI	DGE		kg	10,000	*****	
9	SEPARATION RAILING BIKEWAY RAILING			m m	804 804		
10	RAMP TRANSITION		SWIDIOZ	m	65		
	& Cantilevers (Suspension w/Dual T		625.0 m		2.750	77//	
2	FURNISH/INSTALL DECK OVE JOINT SEAL ASSEMBLY	KLA Y		m2 m	3,750		
2	FURNISH/ERECT STRUCTURAL	L STEEL		kg	468,000		-1.1.
3	FURNISH/ERECT CABLE WIRE			kg	69,000		
4	CLEAN & PAINT STRUCTURAL			m2	9,000		
6	MISCELLANEOUS METAL BRID	DGE		kg	12,960		
7	SEPARATION RAILING BIKEWAY RAILING			m m	1,260 1,260		
	DIREWITT RUMANO			1	1,200		
	Assume Haunched Concrete Superstru	cture)	2400.0 m				
1	FURNISH PILES			m TA	1,200		
3	DRIVE PILES PRESTRESSING, LONGITUDINA	AT	129.000	EA LS	0		
4	PRESTRESSING, TRANSVERSE		272460	LS	1		
5	STRUCTURAL CONCRETE, BR			m3	1,612		
6	STRUCTURAL CONCRETE, BR		eight)	5310	6,800		
7 8	FURNISH/INSTALL DECK OVER BAR REINFORCING STEEL (BR			m2	14,400		
9	JOINT SEAL ASSEMBLY	IDGE)	~	kg m	1,020,000 32		
10	MISCELLANEOUS METAL BRII	OGE		kg	38,400		
11	SEPARATION RAILING			m	4,800		
12	BIKEWAY RAILING			m	4,800		
					ļ		
Dakland i	Plaza Structure		167.0 m				
1	FURNISH PILES			m	256		
2	DRIVE PILES			EA	16		
3	PRESTRESSING STEEL	DCE.	44560	LS -2	1 200		
5	STRUCTURAL CONCRETE, BRI FURNISH/INSTALL DECK OVE			m3 m2	300 0		~
5	JOINT SEAL ASSEMBLY	LA I		m	8		
6	BAR REINFORCING STEEL (BR	IDGE)		kg	38,000		
7	MISCELLANEOUS METAL BRII	OGE		kg	1,680		
8	SEPARATION RAILING	·		m	210		
9 10	BIKEWAY RAILING TRANSITION/ROADWAY			m m	210 184		·
10	IKANSIIIOIVKOADWA I			<u> </u>	104		
					······································		
ighting		*					
	BIKEWAY LIGHTING	-,		LS	1		
	BIKEWAY APURTENANCES			LS	1 BRIDGE ITEMS		\$39,693,880
COMMENTS:					OBILIZATION	(@ 10%)	\$4,410,431
					BRIDGE ITEMS		\$44,104,311
					NTINGENCIES	(@ 25%)	\$11,026,078
				GRAND TOT			\$55,130,389
	COST PER SQ. METER	\$4,191		GRAND TOT	AL T PURPOSES - S	SAY	\$55,130,389 \$55,100,000
		<b>₹714/1</b>		- UNDOL			400,100,000

HGPRIKES VIO RK-91

# **Aesthetic Lighting Alternatives**

- AL-1 AL-2 Aesthetic Lighting, Cable Stayed Main Span Aesthetic Lighting, Suspension Main Span

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COMMENTS:         MOBILIZATION (@ 10%)         \$2,957,556           SUBTOTAL BRIDGE ITEMS         \$29,575,556           CONTINGENCIES (@ 25%)         \$7,393,889           BRIDGE TOTAL COST         \$36,969,444           Less Standard Saftey Lighting & Elect         -\$15,200,000           GRAND TOTAL         \$21,769,444	MARGIN	AL ESTIMATE - MISCELLANEOUS	STRUCTURES			1		
STRUCTURE:   AESTHETIC LIGHTING					RCVD BY:	RAF	IN EST:	
TYPE:   SUSPENSION ALTERNATIVE   CU:   04							OUT EST:	
TYPE:   SUSPENSION ALTERNATIVE   CU:   04	STRU	CTURE: AESTHET	IC LIGHTING		BR. No.:	34-0006	DISTRICT:	
EA:		TYPE: SUSPENSION	NALTERNATIVE		CU:	04	RTE:	
LENGTH:   4200.0 m   NUMBER OF STRUCTURES IN PROJECT:   EST. NO.		21 (10 \$600) (10			Sect Surveyor		CO:	
WIDTH:   100.0 m								
WIDTH:   100.0 m	LENGT	H: 4200.0 m	NUMBER OF S	STRUCTUR	ES IN PROJECT :		EST. NO.	
AREA = 420000.0 m sq								<del>***                                  </del>
QUANTITIES CHECKED BY: DATE:				(				**************************************
CONTRACT ITEMS   TYPE   UNIT   QUANTITY   PRICE   AMOUNT								
CONTRACT ITEMS   TYPE   UNIT   QUANTITY   PRICE   AMOUNT			<u> </u>					
1	SUSPEN	SION ALTERNATIVE - TWIN	TOWERS					
A		CONTRACT	ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
Skyway Lighting - Furnish	1	Mainspan Lighting - Furnish			LS	1		
A   Skyway Lighting - Install   LS   1	2				LS	1		
Subtotal   Subtotal	3	Skyway Lighting - Furnish			LS	1		
SUBTOTAL   \$26,618,000   MOBILIZATION (@ 10%)   \$2,957,556   SUBTOTAL BRIDGE ITEMS   \$29,575,556   CONTINGENCIES (@ 25%)   \$7,393,889   BRIDGE TOTAL COST   \$36,969,444   Less Standard Saftey Lighting & Elect   \$15,200,000   GRAND TOTAL   \$21,769,444   FOR BUDGET PURPOSES - SAY   \$21,800,000   SUSPENSION ALTERNATIVE - SINGLE TOWERS   FOR BUDGET PURPOSES - SAY   \$21,800,000   SUSPENSION ALTERNATIVE - Furnish   LS   1	4	Skyway Lighting - Install			LS	1		
MOBILIZATION (@ 10%) \$2,957,556	5	Electrical			LS	1		
SUBTOTAL BRIDGE ITEMS   \$29,575,556			*		SUBTOTAL			\$26,618,000
CONTINGENCIES (@ 25%) \$7,393,889   BRIDGE TOTAL COST \$36,969,444   Less Standard Saftey Lighting & Elect \$15,200,000     GRAND TOTAL \$21,769,444     FOR BUDGET PURPOSES - SAY \$21,800,000	COMME	ENTS:			M	OBILIZATION	(@ 10%)	\$2,957,556
BRIDGE TOTAL COST								\$29,575,556
Less Standard Saftey Lighting & Elect					CO	NTINGENCIES	(@ 25%)	\$7,393,889
GRAND TOTAL   \$21,769,444								\$36,969,444
GRAND TOTAL   \$21,769,444					Less Star	ndard Saftey Lig	hting & Elect	-\$15,200,000
CONTRACT ITEMS   TYPE   UNIT   QUANTITY   PRICE   AMOUNT					<b>GRAND TOT</b>	AL		\$21,769,444
CONTRACT ITEMS   TYPE   UNIT   QUANTITY   PRICE   AMOUNT	COS	ST PER SQ. METER	\$88		FOR BUDGE	T PURPOSES -	SAY	\$21,800,000
CONTRACT ITEMS   TYPE   UNIT   QUANTITY   PRICE   AMOUNT								
1         Mainspan Lighting - Furnish         LS         1           2         Mainspan Lighting - Install         LS         1           3         Skyway Lighting - Furnish         LS         1           4         Skyway Lighting - Install         LS         1           5         Electrical         LS         1           SUBTOTAL         \$26,618,000           COMMENTS:         MOBILIZATION (@ 10%)         \$2,957,556           SUBTOTAL BRIDGE ITEMS         \$29,575,556           CONTINGENCIES (@ 25%)         \$7,393,889           BRIDGE TOTAL COST         \$36,969,444           Less Standard Saftey Lighting & Elect         -\$15,200,000           GRAND TOTAL         \$21,769,444	SUSPEN							
2       Mainspan Lighting - Install       LS       1         3       Skyway Lighting - Furnish       LS       1         4       Skyway Lighting - Install       LS       1         5       Electrical       LS       1         SUBTOTAL       \$26,618,000         COMMENTS:       MOBILIZATION (@ 10%)       \$2,957,556         SUBTOTAL BRIDGE ITEMS       \$29,575,556         CONTINGENCIES (@ 25%)       \$7,393,889         BRIDGE TOTAL COST       \$36,969,444         Less Standard Saftey Lighting & Elect       -\$15,200,000         GRAND TOTAL       \$21,769,444			ITEMS	TYPE			PRICE	AMOUNT
3         Skyway Lighting - Furnish         LS         1           4         Skyway Lighting - Install         LS         1           5         Electrical         LS         1           SUBTOTAL         \$26,618,000           COMMENTS:         MOBILIZATION (@ 10%)         \$2,957,556           SUBTOTAL BRIDGE ITEMS         \$29,575,556           CONTINGENCIES (@ 25%)         \$7,393,889           BRIDGE TOTAL COST         \$36,969,444           Less Standard Saftey Lighting & Elect         -\$15,200,000           GRAND TOTAL         \$21,769,444								
4 Skyway Lighting - Install 5 Electrical  SUBTOTAL  SUBTOTAL  SUBTOTAL BRIDGE ITEMS \$29,575,556  CONTINGENCIES (@ 25%)  \$7,393,889  BRIDGE TOTAL COST \$36,969,444  Less Standard Saftey Lighting & Elect \$21,769,444						-		
5         Electrical         LS         1           SUBTOTAL         \$26,618,000           COMMENTS:         MOBILIZATION (@ 10%)         \$2,957,556           SUBTOTAL BRIDGE ITEMS         \$29,575,556           CONTINGENCIES (@ 25%)         \$7,393,889           BRIDGE TOTAL COST         \$36,969,444           Less Standard Saftey Lighting & Elect         -\$15,200,000           GRAND TOTAL         \$21,769,444								
SUBTOTAL   \$26,618,000								
COMMENTS:         MOBILIZATION (@ 10%)         \$2,957,556           SUBTOTAL BRIDGE ITEMS         \$29,575,556           CONTINGENCIES (@ 25%)         \$7,393,889           BRIDGE TOTAL COST         \$36,969,444           Less Standard Saftey Lighting & Elect         -\$15,200,000           GRAND TOTAL         \$21,769,444	5	Electrical				11		
SUBTOTAL BRIDGE ITEMS       \$29,575,556         CONTINGENCIES (@ 25%)       \$7,393,889         BRIDGE TOTAL COST       \$36,969,444         Less Standard Saftey Lighting & Elect       -\$15,200,000         GRAND TOTAL       \$21,769,444								
CONTINGENCIES (@ 25%) \$7,393,889  BRIDGE TOTAL COST \$36,969,444  Less Standard Saftey Lighting & Elect -\$15,200,000  GRAND TOTAL \$21,769,444	COMME	NTS:						the second secon
BRIDGE TOTAL COST \$36,969,444  Less Standard Saftey Lighting & Elect -\$15,200,000  GRAND TOTAL \$21,769,444			· · · · · · · · · · · · · · · · · · ·		74.4			
Less Standard Saftey Lighting & Elect         -\$15,200,000           GRAND TOTAL         \$21,769,444							(@ 25%)	
GRAND TOTAL \$21,769,444								
							hting & Elect	
COST PER SQ. METER \$88 FOR BUDGET PURPOSES - SAY \$21,800,000			,					
		ST PER SQ. METER	\$88		FOR BUDGE	T PURPOSES -	SAY	\$21,800,000

					RCVD BY:	RAF	IN EST:	
							OUT EST:	
STRU	CTURE:	<b>AESTHETIC</b>	LIGHTING	3	BR. No.:	:	DISTRICT:	
		ABLE-STAYED				: 04	RTE:	
					- 100 VPO -	01200K	CO:	· · · · · · · · · · · · · · · · · · ·
					211		KP:	
I ENCT	TI. 4200.0		NED OF OF	· computer m				
LENGT			NUMBER OF	STRUCTUR	ES IN PROJECT		EST. NO.	· · · · · · · · · · · · · · · · · · ·
WIDT				<del>.</del>	PRICES BY		COST INDEX:	
AREA	A = 420000.0  m s	q			QUANTITIES BY		DATE:	
			<u> </u>	QUANTITIE	S CHECKED BY	:	DATE:	<del> </del>
CABLE-	STAYED ALTERN	NATIVE - TWIN	TOWERS					
		CONTRACT ITI		TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	Mainspan Lighti				LS	1		
2	Mainspan Lighti				LS	1	-	
3	Skyway Lighting				LS	1		
4	Skyway Lighting				LS	1		<del></del>
5	Electrical	,			LS	1		
					SUBTOTAL	<del>_</del>	<del></del>	\$21,212,000
COMME	ENTS:					IOBILIZATION	(@ 10%)	\$2,356,889
-			···	•		BRIDGE ITEMS		\$23,568,889
	<del> </del>			•		NTINGENCIES		\$5,892,222
				•	BRIDGE TO		<del>-`</del>	\$29,461,111
-				•	Less	Standard Saftey	Lighting	-\$15,200,000
					GRAND TOT			\$14,261,111
COS	T PER SQ. METER		\$70	1	FOR BUDGE	T PURPOSES -	SAY	\$14,300,000
CABLE-	STAYED ALTERN	NATIVE - SING	LE TOWER	•				
		CONTRACT ITI	EMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	Mainspan Lightin				LS	1		
2	Mainspan Lightin				LS	1		
3	Skyway Lighting				LS	1		
4	Skyway Lighting				LS	1		
5	Electrical				LS	1		
	* · · · · · · · · · · · · · · · · · · ·				SUBTOTAL	<u> </u>	11	\$20,957,000
COMME	ENTS:				M	OBILIZATION	(@ 10%)	\$2,328,556
				•		BRIDGE ITEMS		\$23,285,556
				-	CO	NTINGENCIES	(@ 25%)	\$5,821,389
				•	BRIDGE TO			\$29,106,944
				•	Less	Standard Saftey	Lighting	-\$15,200,000
6					GRAND TOT	FAL		\$13,906,944
COS	T PER SO METER		\$69	1	FOR BUIDGE	T PURPOSES -	SAV	\$13,900,000

# **Demolition**

F-1,2,3

Demo less Demo Included in Viaduct Modifications

# SUMMARY OF COST ESTIMATE FOR BRIDGE DEMOLITION

NOTE DEMO - 14 mortus

Bridge		Supers	tructu	re Den	olition				Su	bstruc	ture De	emoliti	on			TOTAL
Portion	Coi	ncrete D	eck	S	teel Trus	38	S	teel Port	al	Concre	te abov	Water	Concre	te belov	v Water	соѕт
participation of the participa	Quantity	Unit Price	Cost	Quantity	Unit Price	Cost	Quantity	Unit Price	Cost	Quantity	Unit Price	Cost	Quantity	Unit Price	Cost	1.5
·	(CY)	(\$ / CY)	(\$1,000)	(klps)	(\$ / kips)	(\$1,000)	(kips)	(\$ / kips)	(\$1,000)	(CY)	(\$ / CY)	(\$1,000)	(CY)	(\$ / CY)	(\$1,000)	(\$ million
		,														
Bent48 - YB1	3631	B.		0		<b>3</b> 0	0 ,			1957			0			0.598
YB1 - E1	3264			7996			1449			4875			0			2.819
E1 - E4	5398			40500			4513			22151			16699			18.724
E4 - E9	5700			23005			4774			5369			6682	ý		9.745
E9 - E23	9100			28378	i.		2092			7838			5895			9.802
E23 - E39	3395	:	/	2005			56			10197		***	368			1.588
Detour	18	5,000 SF 3	¢ \$14.00 /	SF					•						v	2.600
Total (\$ mlilio	.n)		4.290			23.472			1.522			5.171			8.820	45.87

 Contingency 25%
 11.469

 Total cost (\$ million)
 57.343

# **Life Cycle Costs**

All Alternatives

#### **BAY BRIDGE REPLACEMENT**

## **COMPARATIVE LIFE CYCLE COST ANALYSIS - PRIMARY DESIGN ALTERNATIVES**

True Cost of Capital = 1.0775/1.03 = 1.0461

					<b>LE-STAYED N</b> 3 215m & 275n						SPENSION M. 5 215m & 275r		
	-	DUAL C	ONCRETE T	OWERS	SINGLE	CONCRETE	TOWER	DUAL	STEEL TOV	VERS	SING	LE STEEL TO	WER
(sk)	YWAY TYPE) >>	Haunched Concrete	Uniform Depth Concrete	Uniform Depth Steel	Haunched Concrete	Uniform Depth Concrete	Uniform Depth Steel	Haunched Concrete	Uniform Depth Concrete	Uniform Depth Steel	Haunched Concrete	Uniform Depth Concrete	Uniform Depth Steel
COST ITEM	FREQUENCY (YEARS)	Norm	\$ (x1000) alized to year	2002	Norm	\$ (x1000) alized to year	2002	Norma	\$ (x1000) alized to year	2002	Norm	\$ (x1000) alized to year	2002
A. INSPECTION													2000
A.1. SUPERSTRUCTURE	1												
A.2. SUBSTRUCTURE	2												
B. MAINTENANCE, BY STATE CREWS													
B.1. PAINT STEEL	20												
B.2. SUBSTRUCTURE	1												
B.3. SUPERSTRUCTURE	1												
B.4. EXPANSION JOINTS	5				1								
B.5. SURFACING	1												1879
B.6. SEALING/INJECT CONC.	15												
C. MAINTENANCE, CONTRACTED		117											
C.1. CABLE BAND BOLTS -TIGHTEN	30	20.33	411					3000			i i		
C.2. EXPANSION JOINTS - REPLACE	30										12 h		
C.3 SURFACING - REPLACE (both PolyEth. & Epoxy Asph.)	30												
C.4. HANGERS - REPLACE	60	1,62%	T 100	N. L. H.		144	0.277						
C.5. CABLE-STAYS - REPLACE	60									100			2 30
C.6. CONCRETE - SEAL / EPOXY INJECT	20				-								
D. TRAFFIC DELAY COST													
D.1. CONTRACT WORK		-											
TOTAL, COMPARĂTIVE LIFE CYCLE CO	STS (KS)	13,900	14,073	18,232	13,888	14,061	18:247	12,229	12,402	16,561	11,534	11,707	15,86

### LIFE-CYCLE COST ANALYSIS - BAY BRIDGE

**INCREASE SUSPENSION MAIN SPAN TO 215m & 350m** 

			the second se		ED MAIN SP	the same of the sa		Jiii & <u>330iii</u>		SPENSIO	N MAIN SP	AN	
		DUA	L PORTA	L	SIN	IGLE PYLC	N	DUA	L PORTA	L	SII	NGLE PYLO	N
		Hnch Conc U		Steel	Hnch Conc			Hnch Conc U		Steel		Unif. Conc	Steel
COSTITEM	FREQ,yr	2002	2 \$ (X1000	)	200	02 \$ (X1000	0)	200	2 \$ (X1000	0)	20	002 \$ (X1000	))
A. INSPECTION A.1 SUPER A.2 SUB B. MAINT., STATE CREWS B.1 PAINT B.2 SUB. B.3 SUPER. B.4 EXP. JTS. B.5 SURF. B.6 CONCRETE SEAL/INJ. C. MAINT., CONTRACTS C.1 CABLE BANDS	20 1 1 5 1 20												
C.2 EXP. JTS. C.3 SURF. C.4 HANGERS C.5 STAYS C.6 CONC. SEAL/INJ.  D. TRAFFIC D.1 CONTRACT	30 30 60 60 20					10, 3			y 576				
TOTAL	1	0	0	(	0	0	(	274	207	247	187	120	159

USING: Capital Cost = 1.0775/1.03 = 1.0461

# **COMPARATIVE LIFE CYCLE COST ANALYSIS** BASELINE - Haunched Conc. Skyway FULL LENGTH True Cost of Capital = 1.0775/1.03 = 1.0461

(2002 \$)	4	
COST ITEM	FREQ, yr.	\$ (x1000)
A. INSPECTION A.1 SUPERSTRUCTURE A.2 SUBSTRUCTURE	1 2	
B. MAINT. STATE CREWS B.1 PAINT B.2 SUBSTRUCTURE B.3 SUPERSTRUCTURE B.4 EXPANSION JOINTS B.5 SURFACING B.6 CONCRETE SEAL/INJECTION  C. MAINT. CONTRACT C.1 CABLE BANDS C.2 EXPANSION JOINTS C.3 SURFACING C.4 HANGERS C.5 STAYS C.6 CONCRETE SEAL/INJECTION	20 1 1 5 1 20 30 30 30 60 60 30	
D. TRAFFIC D.1 CONTRACT		
TOTAL COMPARATIVE LCC, yr 2002 \$ (x	(1000)	17,201.9
E. POST-E/Q REPAIR COSTS E.1 STRUCTURAL CONCRETE E.2 STRUCTURAL STEEL E.3 DECK SURFACE E.4 EXPANSION JOINTS/SEALS E.5 BEARINGS E.6 LANE CLOSURE COSTS		
TOTAL POST-E/Q RPR COST, yr 2002 \$ (	x1000)	20% EV.W

#### BAY BRIDGE REPLACEMENT

### **COMPARATIVE LIFE CYCLE COST ANALYSIS**

### POST-EARTHQUAKE REPAIR COSTS & INCREMENTAL LIFE CYCLE COSTS

		SIR		IN SPANS	215m & 275	MAIN SPA 5m)	143	31	(MA	UN SPANS	215m & 27		
		DUAL CO	NCRETE 1	OWERS	SINGLE C	ONCRETE	TOWER	DUAL	STEEL TO	WERS	SINGL	E STEEL TO	OWER
(sk	YWAY TYPE) >>	Haunched Concrete	Uniform Depth Concrete	Uniform Depth Steel	Haunched Concrete	Uniform Depth Concrete	Uniform Depth Steel	Haunched Concrete	Uniform Depth Concrete	Uniform Depth Steel	Haunched Concrete	Uniform Depth Concrete	Uniform Depth Steel
COST ITEM	FREQUENCY (YEARS)		\$ (x1000)			\$ (x1000)			\$ (x1000)			\$ (x1000)	
E. POST-EARTHQUAKE REPAIRS *													
E.1. STRUCTURAL CONC. REPAIR (R&R)	N/A												
2. STRUCTURAL STEEL REPAIR (R&R)	N/A												
.3. DECK SURFACE (CONCRETE; STEEL)	N/A												
4. EXPANSION JTS AND JT SEAL ASS'YS	N/A								30				
E.5. BEARINGS (SPH. EXPANS.; ELAST.)	N/A	3											
6. LANE CLOSURE COSTS	N/A												
Total Costs (\$1998)		22,740	21,970	25,568	23,432	22,662	26,260	22,848	22,078	25,676	24,636	23,866	27,40
			2,757	3,209	2,941	2,844	3,296	2,868	2,771	3,223	3,092	2,995	3,4
Escalation to \$2002, at 3%/yr		2,854	2,/5/	3,203	2,041			THE RESIDENCE AND	AND DESCRIPTION OF TAXABLE PARTY.				
* Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular fut	E REPAIRS *  State of the state	25,594 Credible EC	24,727 ). "ed.)	28,777	26,373	25,506	29,556		24,849	28,899	27,728	26,861	30,6
* Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular fut	E REPAIRS *  Substituting the substituti	25,594 Credible EC	24,727 ). "ed.)	28,777	26,373	25,506	29,556			28,899	27,728	26,861	30,9
** Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular fut:    INCREMAN.   SUPERSTRUCTURE	Superior of the superior of th	25,594 Credible EC	24,727 ). "ed.)	28,777	26,373	25,506	29,556			28,899	27,728	26,861	30,9
* Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular fut:  INCREMAN.  SUPERSTRUCTURE  2. SUBSTRUCTURE	due to maximum ure point and "pr  IENTAL LIFE  1 2	25,594 Credible EC	24,727 ). "ed.)	28,777	26,373	25,506	29,556			28,899	27,728	26,861	30,9
* Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular tute  INCREM  1. SUPERSTRUCTURE  2. SUBSTRUCTURE  3.1. PAINT STEEL	due to maximum use point and "pri	25,594 Credible EC	24,727 ). "ed.)	28,777	26,373	25,506	29,556			28,899	27,728	26,861	30,9
**Based on current costs for POST-EARTHQUAK  **Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular future in the second	due to maximum une point and "pri	25,594 Credible EC	24,727 ). "ed.)	28,777	26,373	25,506	29,556			28,809	27,728	28,861	30,8
* Based on current costs for Post-Earthquak  * Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular futs  INCREM  1. SUPERSTRUCTURE  1.1. PAINT STEEL  1.3. SUPERSTRUCTURE  1.5. SURFACING	Jue to maximum ure point and *pr  MENTAL LIFE  1  2  20  1	25,594 Credible EC	24,727 ). "ed.)	28,777	26,573 SE SUSPI	25,506	29,556			22,899	27,728	26,861	30,9
* Based on current costs for Post-Earthquak  * Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular fut  INCREM  1. SUPERSTRUCTURE  2. SUBSTRUCTURE  3. SUPERSTRUCTURE	Jue to maximum ure point and "print and	25,594 Credible EC	24,727 ). "ed.)	28,777	26,573 SE SUSPI	25,506	29,556			28,898	27,728	26,861	30,9
* Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular fut INCREMANDED TO SUPERSTRUCTURE  1.1. SUPERSTRUCTURE 1.2. SUBSTRUCTURE 1.3. SUPERSTRUCTURE 1.5. SUPERSTRUCTURE 1.6. SEALING/INJECT CONC. 1.1. CABLE BAND BOLTS -TIGHTEN	due to maximum use point and "pri	25,594 Credible EC	24,727 ). "ed.)	28,777	26,573 SE SUSPI	25,506	29,556			20,899	27,728	26,861	30,8
* Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular tute  INCREM  1. SUPERSTRUCTURE  1. PAINT STEEL  1. SUPERSTRUCTURE  2. SUPERSTRUCTURE  3. SUPERSTRUCTURE  4. SUPERSTRUCTURE  5. SURFACING  5. SUPERSTRUCTURE  6. SUPERSTRUCTURE	due to maximum use point and "print and "pri	25,594 Credible EC	24,727 ). "ed.)	28,777	26,573 SE SUSPI	25,506	29,556			28,899	27,728	26,861	30,6
* Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular future)  INCREM  INCRE	due to maximum une point and "pri MENTAL LIFE  1 2 20 1 1 15 30 30 60	25,594 Credible EC	24,727 ). "ed.)	28,777	26,573 SE SUSPI	25,506	29,556			28,899	27,728	26,861	30,9
**Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular future)  **INCREM**  INCREM**  I	due to maximum une point and "pri MENTAL LIFE  1 2 20 1 1 15 30 30 60 20	25,594 Credible EC	24,727 ). "ed.)	28,777	26,573 SE SUSPI	25,506	29,556			28,899	27,728	26,861	30,9
**Based on current costs to repair anticipated damage (EQ event / Repairs not assumed at any particular future)  **INCREM**  INCREM**  I	due to maximum une point and "pri MENTAL LIFE  1 2 20 1 1 15 30 30 60 20 NVA	26,594 credible EC esent worth	24,727 ). red.)	28,777	28,573 SE SUSPI	25,506 ENSION I	29,556					26,861	